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A Report Prepared for

Van Waters & Rogers, Inc.
1363 South Bonnie Beach Place
Los Angeles, California 90023

EVALUATION OF INTERIM REMEDIAL MEASURES
VAN WATERS & ROGERS, INC. DR 7398
3950 YEON AVENUE 2.1.89
PORTLAND, OREGON 10a

HLA Job No. 9695,052.02

FILE COPY

by

Elizabeth J. Scretton
Elizabeth J. Scretton
Staff Hydrogeologist

James M. Oliver
James M. Oliver
Project Hydrogeologist

Christopher R. Smith
Christopher R. Smith
Senior Associate Hydrogeologist

Harding Lawson Associates
7655 Redwood Boulevard
P.O. Box 578
Novato, California 94948

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TABLE OF CONTENTS

LIST OF TABLES.....	iv
LIST OF ILLUSTRATIONS.....	v
1.0 INTRODUCTION	1
2.0 WORK PERFORMED	2
2.1 Air Monitoring.....	2
2.2 Soil Gas Survey.....	2
2.3 Soil Sampling.....	2
2.4 Well Installation	3
2.5 Ground-Water Sampling.....	3
2.6 Water-Level Measurements.....	4
2.7 Aquifer Testing.....	4
3.0 HYDROGEOLOGY	5
3.1 Geology	5
3.2 Water-Level Elevations	6
4.0 RESULTS OF CHEMICAL ANALYSES	7
4.1 Air Monitoring.....	7
4.2 Soil Gas Survey.....	7
4.3 Soil.....	8
4.4 Ground Water.....	8
4.4.1 Shallow Ground Water	8
4.4.2 Deep Ground Water	9
5.0 POTENTIAL MIGRATION PATHWAYS	10
5.1 Air	10
5.2 Soil	10
5.3 Surface Water	11
5.4 Ground Water.....	11
6.0 INTERIM REMEDIAL MEASURES.....	13
7.0 REFERENCES	14

TABLE OF CONTENTS (continued)

TABLES

ILLUSTRATIONS

DISTRIBUTION

LIST OF TABLES

- Table 1 Summary of Water-Level Elevation Measurements**
- Table 2 Results of Air Monitoring**
- Table 3 Summary of Representative Soil Gas Survey Results**
- Table 4 Summary of Shallow Soil Chemistry Data**
- Table 5 Summary of Ground-Water Chemical Data**

LIST OF ILLUSTRATIONS

- Plate 1 Air Monitoring and Soil Gas Survey Locations
- Plate 2 Soil Boring Locations
- Plate 3 Monitoring Well Locations
- Plate 4 Location of Cross Sections
- Plate 5 Geologic Cross Section A-A'
- Plate 6 Geologic Cross Section B-B'
- Plate 7 Unified Soil Classification Chart

1.0 INTRODUCTION

This interim remedial measure (IRM) evaluation has been prepared by Harding Lawson Associates (HLA) and Van Waters and Rogers, Inc. (VW&R). The purpose of the report is to evaluate the need for IRMs to either mitigate the release of hazardous waste or mitigate the impact on affected receptors. Evaluation is based upon work performed at the Portland, Oregon, facility from June 15 through December 15, 1988.

The work performed is part of a corrective action plan being conducted pursuant to an administrative Order on Consent (Consent Order) dated June 15, 1988, between the U.S. Environmental Protection Agency, Region X (EPA) and VW&R. The Consent Order was written in accordance with Section 3008(h) of the Resource Conservation and Recovery Act (RCRA).

Investigation activities performed at VW&R Portland facility are described in the following plans, which have been submitted in draft form to the EPA:

- o Phase I Investigation Work Plan
- o Data Collection Quality Assurance Plan (DCQAP)
- o Facility Health and Safety Plan
- o Community Relations Plan
- o Data Management Plan
- o Project Management Plan.

2.0 WORK PERFORMED

The field work described below was performed in accordance with the Phase I Investigation Work Plan, the DCQAP, the Facility Health and Safety Plan, and the Data Management Plan.

2.1 Air Monitoring

Air monitoring was performed August 29 through 31, 1988, to assess the potential for releases of particulate and gaseous contaminants into the atmosphere as a result of the chemicals in soil and shallow ground water. To assess this potential, air monitoring was performed at the ground surface and breathing zone using a portable gas analyzer. Air monitoring station locations are shown on Plate 1.

2.2 Soil Gas Survey

The soil gas survey was performed to assess the horizontal extent of chemicals in the shallow soil gas.

A partial soil gas survey was initiated by Tracer Research Corporation on October 20 and 23, 1988. The survey was completed between November 29 through December 2, 1988. The soil gas survey locations are shown on Plate 1.

2.3 Soil Sampling

Soil sampling was performed to further investigate the vertical and horizontal extent of chemicals in the soil. Seven soil borings, DB-11 through DB-17, were drilled during the evaluation period. Borings DB-1 through DB-10 were drilled during the Phase I and Phase II Monitoring Analysis and Testing (MAT) investigations (*HLA, 1987a; HLA, 1987b*). Each boring was drilled to the ground-water surface in the upper aquifer zone (approximately 10 to 14 feet below ground surface). Samples were

collected using a split spoon sampler, at approximately 2.5 foot intervals in each boring. Samples were sent to the laboratory under chain of custody and analyzed using EPA Methods 8010 and 8020. Boring locations are shown on Plate 2.

2.4 Well Installation

Eight ground-water monitoring wells were installed at the facility during the evaluation period. Their locations and depths were selected to supplement existing knowledge concerning the horizontal and vertical extent of chemical-bearing ground water. Six of the eight wells (SMW-7 through SMW-12) are shallow monitoring wells and were installed using hollow-stem auger drilling techniques and constructed with 4-inch-diameter PVC.

Wells DMW-1 and DMW-2 are screened in the deep aquifer and were drilled using mud-rotary drilling methods. The deep aquifer wells were double cased and constructed with 4-inch-diameter PVC.

Four vadose zone soil samples were collected from boring for Wells SMW-7, SMW-8, SMW-11, and SMW-12. The samples were collected using a split-spoon drive sampler at approximately 2.5 foot intervals from the surface. Samples collected were sent to the laboratory under chain of custody and analyzed using EPA Test Methods 8010 and 8020. Monitoring well locations at the facility is are shown on Plate 3.

2.5 Ground-Water Sampling

Two complete quarterly ground-water sampling rounds were conducted. All wells on the facility were sampled with the exception of SMW-7 and DMW-2 which had not been installed at the time of the first sampling round in August 1988. The second round of samples was collected in November 1988. During the August 1988 round,

samples from SMW-4 and SMW-6 were analyzed using EPA Test Methods 8010, 8020, 8080, 8140, 8150, 8270, and priority pollutant metals. Ground-water samples from all other wells were analyzed using EPA Method 8010 and 8020. A duplicate sample from Well SMW-4 was analyzed by EPA Test Method 8240.

During the second round in November 1988, all samples were analyzed using EPA Method 8010 and 8020 with the exception of the sample from Well SMW-12, which was analyzed using EPA Method 8240. Results of laboratory analyses are included in Progress Reports II and III (*HLA, 1988a; HLA, 1988b*).

2.6 Water-Level Measurements

Water levels were monitored monthly in all ground-water monitoring wells. These data were used to generate potentiometric surface maps and hydrographs to aid in identifying seasonal fluctuations and/or variations in horizontal and vertical hydraulic gradient magnitude and direction.

2.7 Aquifer Testing

An aquifer test was performed on Well SMW-5 to estimate the aquifer characteristics of the shallow aquifer zone. The test consisted of a step drawdown test and a constant rate discharge test performed on October 21 and 22, 1988, respectively.

3.0 HYDROGEOLOGY

3.1 Geology

Phase I MAT geologic exploratory borings, subsurface borings to the water table, and ground-water monitoring wells provide data for a description of geologic conditions at the site. The logs of exploratory borings EX-1 through EX-4 and the borings for Wells DMW-1 and DMW-2 indicate that the top of the Troutdale Formation lies at depths ranging from 58 to 74 feet below ground surface (Plates 4 through 6). Occasional gravels recovered in samples near the bedrock contact during drilling show that the Troutdale Formation is locally composed of subangular to angular basalt, cemented by clay. This observation is in agreement with descriptions of the upper Troutdale Formation conglomerate by Trimble (1963). The bedrock surface appears undulatory and is probably erosional, although a regional dip to the north may occur. The geologic cross sections presented on Plates 5 and 6 indicate the surface of the Troutdale Formation across the facility.

A 10- to 20-foot-thick zone of water-bearing silty sands and sands interbedded with sandy silts overlies the Troutdale Formation. Above these deposits are 15 to 30 feet of unconsolidated fine-grained sediments composed primarily of silt and clay with lenses of silty sand.

The artificial fill material in Guilds Lake overlies the fine-grained sediments to the ground surface. The fill material consists primarily of poorly-graded, fine-to-medium-grained sand with lenses of silty sands and silt. The grains vary from angular to subrounded. The occurrence of silt and clayey silt layers above 30 feet below ground surface in Borings EX-5, AR-1, SMW-9, and SMW-3 (Plate 6), on the eastern side of the site, are indicative of the margin of Guilds Lake.

3.2 Water-Level Elevations

Data from the additional shallow monitoring wells (SMW-7 through SMW-12) during Phase I provide a more accurate description of ground-water flow across the facility. Table 1 presents ground-water elevations on August 31, September 13, October 22, and November 29, 1988.

All measurement rounds indicate that shallow ground-water flow in the northern part of the facility is to the northeast. Gradients are slight, less than 0.01, and were highest during the August 31 measurements and lowest during the November 29 measurement round.

Gradients between monitoring wells SMW-1, SMW-4, SMW-5, SMW-6, and SMW-7, are extremely slight and no definite trend in flow direction is evident for any of the measurement rounds.

In the southern part of the complex, water levels in Wells SMW-9, SMW-2, and SMW-8 indicate variable flow patterns. Results from the August 31 and September 13 measurements (Table 1) suggest that the gradient is to the west between SMW-2 and SMW-8, and that flow directions are to the northeast at SMW-9. Results from October 22 and November 29 (Table 1) indicate a flow direction varying from west to north-northwest. Gradients were greatest in this area during the November 29 measurement round.

Water-level measurements from Deep Monitoring Wells DMW-1 and DMW-2 (Table 1) show a downward gradient from the shallow to the deep aquifer. There appears to be no significant horizontal gradient between DMW-1 and DMW-2.

4.0 RESULTS OF CHEMICAL ANALYSES

4.1 Air Monitoring

Air monitoring results are presented on Table 2. The levels presented are the average reading for the surface and breathing zone measurements recorded at each air monitoring station. Two air monitoring stations showed elevated readings. Station 3, north of the drum fill area, and Station 4, south of the storage tanks on the western edge of the VW&R property, showed elevated concentrations both in the breathing zone and ground surface measurements.

4.2 Soil Gas Survey

Soil gas sampling results for trichloroethane (TCA), trichloroethene (TCE), perchloroethene (PCE), toluene, and vinyl chloride (VC) are presented on Table 3. The soil gas sampling results are consistent with ground-water and soil sampling results.

Two notable exceptions to the trends in the soil and ground-water sampling results are elevated concentrations of chemicals at the northern edge of the recycle pad and an elevated VC reading at the southern edge of the drum storage area. Soil gas station 2 at the northeastern corner of the recycle area had elevated levels of TCE, TCA, and PCE. Although ground-water chemical concentrations are high in this area, the levels detected in the soil gas at Station 2 are an order of magnitude higher than the closest soil gas station (Station 23).

The second exception is the high reading (1,400 parts per million [ppm]) of VC detected at Station 8. The presence of VC at Station 8 will be confirmed in subsequent soil and soil gas sampling at this location.

4.3 Soil

Soil sampling results of Methods 8010 and 8020 analyses from deep soil borings and shallow well borings at the VW&R facility are presented in Table 4. Boring logs for borings DB-11 through DB-17 are presented in Progress Report II (*HLA, 1988a*). As with the ground-water samples, the highest concentrations of chemicals detected in the soil are along the western edge of the VW&R building.

The two possible source areas are the drum fill area and the maintenance area south of the recycle area. Samples from the drum fill area, borings DB-2, SMW-7, DB-3, and DB-11, show elevated concentrations of TCA, TCE, PCE, and methylene chloride. Samples from borings drilled in the maintenance area, DB-9, DB-6, and DB-11 show elevated concentrations of TCA, TCE and PCE.

Low levels of TCA, TCE, methylene chloride and toluene are present in Soil Boring DB-12, but no chemical spills or handling transfer activities are known to have occurred in the southeastern corner of the property.

4.4 Ground Water

4.4.1 Shallow Ground Water

Results of Methods 8010 and 8020 analyses from ground-water samples collected from the shallow aquifer during the August and November 1988 quarterly sampling rounds are presented in Table 5.

Elevated concentrations of TCE, PCE, and TCA were found in ground-water samples from wells in the central west side of the VW&R facility. Samples from Wells SMW-6 and SMW-12 show elevated concentrations of TCA, TCE, PCE, and methylene chloride.

Elevated concentrations of toluene and methylene chloride are present in samples from Wells SMW-7 and SMW-4. SMW-7 is located between drum fill operations and the railroad tracks. SMW-4 is south of the maintenance shed. Samples from all wells on the eastern edge of the VW&R facility (SMW-10, SMW-3, and SMW-9) show low concentrations (<0.010 ppm) of chemicals.

4.4.2 Deep Ground Water

Results of Methods 8010 and 8020 analyses from the ground-water samples collected from the deep aquifer monitoring wells during the November 1988 sampling round are presented in Table 5.

Samples from Well DMW-1 showed only TCE concentrations over the detection limit. Elevated concentrations of TCA, TCE, PCE, methylene chloride, and toluene were present in the sample from Well DMW-2. The chemicals found in DMW-2 are consistent with the type of chemicals in Well SMW-7, the corresponding shallow aquifer well.

5.0 POTENTIAL MIGRATION PATHWAYS

The results of the Phase I investigation allow an initial identification of potential migration pathways for chemicals detected in the soils and ground water. Additional information needs to be collected to more adequately evaluate migration pathways and potential impacts on human health and the environment.

5.1 Air

Volatilization of organic chemicals from ground surface or spill areas can occur under varying meteorological conditions. During the Phase I investigation, soil gas and air monitoring investigations were conducted to assess the importance of this migration pathway. The soil gas survey found localized elevated chemical concentrations. The highest concentrations of PCE, TCE, and TCA were detected at Stations 2, 3, 21, 22, and 23, all in the west loading dock area near the recycle area. Methylene chloride appeared primarily at Station 23 at the west loading dock. Elevated vinyl chloride concentrations were found at Station 8. Air monitoring results (Table 2) show little transport of these chemicals into the atmosphere at these locations. Station 3 and 4 air monitoring results may have been affected by nearby above ground chemical transfer activities. Because elevated concentrations of chemicals were detected at only a few air monitoring stations, it does not appear that this mechanism represents a significant migration pathway, at this time.

5.2 Soil

Migration of chemicals into soil from leaks or spills has been verified in at least two areas on site. Migration of chemicals within the soil is primarily downward toward ground water and, to a small extent, upward into the atmosphere. Significant horizontal migration of chemicals within the soil could occur where variations in soil properties

retard vertical movement and enhance horizontal movement, although extensive horizontal chemical migration was not detected. Analysis of soil samples from deep borings and monitoring well installations show only localized elevated chemical concentrations. As in the soil gas survey, PCE, TCA, and TCE were found near the recycle area and west loading dock, and methylene chloride was detected primarily near the west loading dock at DB-11. Nearby borings DB-3 and DB-7 showed much lower methylene chloride concentrations, suggesting limited chemical migration through the soil. Therefore, horizontal migration appears to be minimal. Soil represents a migration pathway only into other media (air and water) and only in the immediate vicinity of the actual source of the chemicals.

5.3 Surface Water

Migration of chemicals into surface water would occur only if rainfall and local runoff could mobilize chemicals in the surface soils. However, most of the site is paved. Drainage on site appears to be entirely controlled by channeling runoff into storm drains; the potential migration pathway would be those drains. Because the area of exposed surface soils containing elevated concentrations of chemicals is limited, surface water is not expected to be an important migration pathway.

5.4 Ground Water

Results of the investigation to date indicate that chemicals dissolved in ground water within the shallow aquifer represent the most important potential migration pathway. The shallow aquifer is apparently laterally continuous, at least within the confines of the margins of Guilds Lake. The direction of ground-water flow within the shallow aquifer is expected to be northerly; locally, directions may vary from northeast to

northwest. The eventual receptor of ground water in the shallow aquifer is most likely the Willamette River. Because of the slight gradient, the rate of ground-water movement is expected to be slow.

Although flow of pure (undissolved) phase chemicals, either atop the water table (e.g., petroleum hydrocarbons) or through the water column (e.g., chlorinated solvents), may be a mode of chemical transport, these phenomena have not yet been observed on site.

Ground-water gradients and distribution of chemicals suggest migration of chemicals in a northwesterly direction away from the facility. However, the gradient is slight and the potential for migration of these chemicals is small.

Vertical gradients exist from the shallow aquifer to the deep aquifer and chemicals found in the deep aquifer suggest the possible downward migration of chemicals from the shallow aquifer to deep aquifer. However, chemical concentrations in deep aquifer are four to five orders of magnitude lower than in the shallow aquifer, and water-level measurements from Wells DMW-1 and DMW-2 indicate a very small horizontal gradient. While this vertical gradient is a concern, it does not seem to be a major pathway and does not pose an immediate threat to potential environmental receptors.

6.0 INTERIM REMEDIAL MEASURES

The purpose of IRMs is to mitigate release of hazardous waste or its impact on potential receptors. The source of concern at the VW&R facility is chemical concentrations in the soil and shallow ground water. Thus, the decision regarding initiation of IRMs is based upon the potential for migration of chemicals in the soil and shallow ground water.

The greatest concentration of chemicals in soil is along the central western portion of the facility. This area is where liquid chemical transfer activities occur, and little exposed soil exists, being capped by either asphalt or cement. On the basis of soil gas survey and air monitoring data, chemical concentrations in soil and soil gas are having little to no effect on air quality.

Chemical concentrations in ground water are highest along the western edge of the VW&R facility. Based upon water-level elevation data, the shallow ground-water gradient is slight and the potential for migration of chemicals beyond the Guilds Lake margin is low. Results of the Phase II MAT investigation (*HLA, 1987b*) show that no known potential receptors of the shallow ground water exist within the confines of the margin of Guilds Lake. Chemical concentration data and water-level elevations for Wells DMW-1 and DMW-2 suggest the possibility for downward migration of chemicals from the shallow aquifer to the deep aquifer. More data will have to be collected to confirm the existence of this migration pathway.

Evaluation of the data collected at the VW&R facility suggests that although elevated soil and ground-water chemical concentrations do exist at the VW&R facility, no immediate threat to human health or rapid degradation of the environment is occurring. Thus, IRMs are not warranted at this time.

7.0 REFERENCES

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- Harding Lawson Associates, 1988a. *Progress Report II, Van Waters and Rogers, Inc., Portland, Oregon*, October 6.
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TABLES

TABLES

Table 1. Water-Level Elevations **Harding Lawson Associates**
Van Waters and Rogers, Inc.
Portland, Oregon

Monitoring Well	31-Aug-88 (feet MSL*)	13-Sep-88 (feet MSL*)	22-Oct-88 (feet MSL*)	29-Nov-88 (feet MSL*)
SMW-1	25.63	25.49	25.01	25.15
SMW-2	26.18	26.98	25.55	26.65
SMW-3	25.61	25.39	24.91	25.17
SMW-4	25.67	25.53	25.06	25.18
SMW-5	25.65	25.54	25.05	25.18
SMW-6	25.72	25.52	25.03	25.15
SMW-7	NA	NA	25.05	25.10
SMW-8	25.22	25.13	24.73	24.78
SMW-9	25.91	25.70	25.24	26.54
SMW-10	23.62	23.47	23.07	23.75
SMW-11	23.97	23.84	23.43	24.12
SMW-12	25.55	25.43	24.97	25.10
DMW-1	21.74	21.42	21.01	21.71
DMW-2	NA	NA	21.01	21.68

* Feet above mean sea level.

Table 2. Results of Air Monitoring
Van Waters & Rogers, Inc.
Portland, Oregon

Harding Lawson Associates

Station Number	Date	<u>Total Organic Vapor Concentration</u>	
		Average Breathing Zone Measurement (ppm*)	Average Ground Surface Measurement (ppm)
1	8/29/88	0.5	0.0
2	8/29/88	0.0	0.0
3	8/29/88	2.1	1.2
4	8/29/88	7.9	4.0
5	8/29/88	0.0	0.0
6	8/29/88	0.0	0.0
7	8/31/88	0.2	0.1
8	8/31/88	0.3	0.5
9	8/31/88	0.0	0.0
10	8/31/88	0.0	0.0
11	8/31/88	0.0	0.0
12	8/31/88	0.1	0.5
13	8/31/88	0.0	0.0
14	8/30/88	0.0	0.0
15	8/30/88	0.0	0.0
16	8/30/88	0.0	0.0
17	8/30/88	0.0	0.0
18	8/30/88	0.4	0.0
19	8/31/88	0.8	0.6
20	8/31/88	0.0	0.0
21	8/31/88	0.0	0.0
22	8/31/88	0.4	0.0
23	8/31/88	0.0	0.0
24	8/29/88	0.2	0.1
25	8/29/88	0.0	2.1

* ppm = parts per million

TABLE 3. SUMMARY OF REPRESENTATIVE SOIL GAS SURVEY RESULTS

Soil Gas Station	DATE	TCA (ppm)	TCE (ppm)	PCE (ppm)	Methylene Chloride (ppm)	Toluene (ppm)	Vinyl Chloride (ppm)
1	10/22/88	0.014	10	84	<0.085	<0.026	100
2	10/22/88	2400	6000	2400	<1.4	<0.26	2.3
2a	11/29/88	7600	11000	2600	<51	<0.78	<8.1
3	10/22/88	900	1200	1600	<910	1300	62
4	10/22/88	0.0018	0.013	0.0058	<0.085	<0.26	<1.5
5	10/22/88	0.16	16	3.5	85	7300	42
6	11/30/88	0.36	8.1	4.4	<24	<1.6	3.9
7	11/30/88	0.00018	0.00055	<0.00087	<0.23	0.16	<0.039
8	11/30/88	<0.090	<0.018	<0.12	24	<0.78	1400
9	11/30/88	0.00036	0.00073	<0.00087	<0.11	<0.21	<3.9
10	10/22/88	<0.0036	13	0.29	<0.57	150	46
11	10/22/88	<0.00054	<0.00073	<0.00029	<0.086	<0.26	<1.5
12	10/22/88	0.36	0.18	4.6	<0.057	<0.18	<0.77
13	10/22/88	2.9	1.1	3.0	<0.085	<0.018	<0.077
14	11/29/88	2.5	2.2	5.0	<26	<0.016	<0.15
15	10/22/88	<0.054	<0.073	<0.00029	<0.085	<0.016	<0.077
16	12/01/88	0.18	<0.037	0.058	<6.0	<0.078	<0.35
17	12/01/88	0.54	0.018	0.012	<6.0	<0.078	<0.35
18	12/01/88	0.013	0.016	0.0058	<6.0	<0.078	<0.35
19	11/30/88	0.018	35	<0.029	<4.8	<1.6	<8.1
20	12/02/88	0.011	0.0055	0.073	<0.57	<0.0052	<0.015
21	12/02/88	0.072	33	610	<25	34	34
22	12/02/88	130	150	920	<140	0.18	30
23	12/02/88	<180	8500	3200	80000	<220	<3.1

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020

SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland**Harding Lawson Associates**

STATION	SAMPLE DEPTH (FT)	SAMPLE DATE	SAMPLE NUMBER	1,1,1-Tri-chloroethane MG/KG RESULT	Trichloro-ethene MG/KG RESULT	Tetrachloro-ethene MG/KG RESULT	Methylene chloride MG/KG RESULT	Toluene MG/KG RESULT	Vinyl chloride MG/KG RESULT
DB-01	1.50	08-04-87	DB-1/1.5	650	880	1600	<500	NT	<50
DB-01	3.00	08-04-87	DB-1/3.0	0.81	1.2	6.1	<0.2	NT	<0.2
DB-01	5.50	08-04-87	DB-1/5.5	2.7	2.7	13.	<5.0	NT	<0.50
DB-01	8.00	08-04-87	DB-1/8.0	<0.2	0.40	2.2	<2.5	NT	<0.2
DB-01	10.00	08-04-87	DB-1/10.0	5.4	7.8	110	<50	NT	<5.0
DB-02	1.20	08-05-87	DB-2/1.2	9.7	94	140	<20	NT	<2.0
DB-02	3.00	08-05-87	DB-2/3.0	41	310	430	<100	NT	<10
DB-02	5.50	08-05-87	DB-2/5.5	16	42	89	<10	NT	<1.0
DB-02	8.00	08-05-87	DB-2/8.0	25	54	250	<50	NT	<5.0
DB-02	10.50	08-05-87	DB-2/10.5	200	<25	1500	<250	NT	<25
DB-03	1.00	08-05-87	DB-3/1.0	24	10	19	<5.0	NT	<0.5
DB-03	3.00	08-05-87	DB-3A/3.0	35	13	68	31	NT	<0.5
DB-03	5.00	08-05-87	DB-3A/5.0	160	39	230	<50	NT	<5.0
DB-03	8.00	08-05-87	DB-3A/8.0	16	3.9	15	<5.0	NT	<0.5
DB-03	10.50	08-05-87	DB-3A/10.5	0.94	0.44	0.90	23	NT	<0.1
DB-04	0.80	08-06-87	DB-4/0.8	<0.02	0.11	<0.017	<0.2	NT	<0.02
DB-04	3.00	08-06-87	DB-4/3.0	5.1	21.	1.6	18	NT	<0.1
DB-04	5.50	08-06-87	DB-4/5.5	2.9	3.5	1.7	30	NT	<0.1
DB-04	8.00	08-06-87	DB-4/8.0	4.2	3.3	16	<5.0	NT	<0.5
DB-04	10.50	08-06-87	DB-4/10.5	36.	14	34	28	NT	<0.5
DB-05	1.50	10-01-87	DB-5/1.5	1.8	5.2	4.4	<1.00	<0.25	<0.10
DB-05	4.00	10-01-87	DB-5/4.0	0.11	0.26	0.20	<0.100	<0.0250	<0.0100
DB-05	6.50	10-01-87	DB-5/6.5	0.13	0.32	0.18	<0.100	<0.0250	<0.0100
DB-05	9.00	10-01-87	DB-5/9.0	0.0780	0.11	0.20	<0.100	<0.0250	<0.0100
DB-06	4.00	10-01-87	DB-6/4.0	11	55	150	<50.0	<12.5	<5.00
DB-06	6.50	10-01-87	DB-6/6.5	320	760	4100	<1000	<250	<100
DB-06	9.00	10-01-87	DB-6/9.0	870	1100	14000	<4000	<1000	<400
DB-07	2.00	10-02-87	DB-7/2.0	5.7	3.5	3.2	<2.0	30	<0.20
DB-07	4.00	10-02-87	DB-7/4.0	0.29	1.1	0.17	1.0	1.9	<0.0200
DB-07	6.50	10-02-87	DB-7/6.5	<0.20	3.1	<0.20	3.9	12	<0.20
DB-08	2.00	10-05-87	DB-8/2.0	0.074	0.28	0.14	<0.10	<0.025	<0.010
DB-08	4.50	10-05-87	DB-8/4.5	0.073	0.21	0.070	<0.10	<0.025	<0.010
DB-08	7.00	10-05-87	DB-8/7.0	0.12	0.24	0.059	<0.10	0.035	<0.010
DB-08	9.50	10-05-87	DB-8/9.5	0.17	0.36	0.11	<0.10	<0.025	<0.010
DB-09	4.50	10-05-87	DB-9/4.5	0.38	0.82	0.87	<0.10	<0.025	<0.010
DB-09	7.00	10-05-87	DB-9/7.0	0.37	0.91	0.93	<0.40	<0.10	<0.040
DB-09	9.50	10-05-87	DB-9/9.5	30	66.0	78	<1000	<250	<100
DB-10	2.00	10-05-87	DB-10/2.0	3.7	13	12	<5.0	19.8	<0.50
DB-10	4.50	10-05-87	DB-10/4.5	0.18	0.37	0.25	0.14	<0.025	<0.010
DB-10	7.00	10-05-87	DB-10/7.0	3.9	9.2	15	<2.0	0.71	<0.20
DB-11	2.70	08-30-88	88351038	1900	1100	1600	1200	2800	<2.5
DB-11	5.20	08-30-88	88351039	58	62	390	250	770	<2.5
DB-11	7.30	08-30-88	88351040	76	25	21	360	58	<2.5
DB-11	10.40	08-30-88	88351041	<1.0	38	20	82	150	<2.5
DB-12	3.80	08-24-88	88341011	<0.010	<0.010	<0.010	0.12	<0.025	<0.025
DB-12	5.60	08-24-88	88341012	<0.010	<0.010	<0.010	0.11	0.12	<0.025
DB-12	7.70	08-24-88	88341013	<0.010	<0.010	<0.010	0.13	0.13	<0.025

REPORT DATE: 01-31-89

TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

TEST METHOD CODE: 8010/20

SAMPLE DATES: 01-aug-1987

through 31-jan-1989

Harding Lawson Associates

STATION	SAMPLE	SAMPLE	SAMPLE	1,1,1-Tri-	Trichloro-	Tetrachloro-	Methylene	Toluene	Vinyl
	DEPTH (FT)	DATE	NUMBER	chloroethane MG/KG RESULT	ethene MG/KG RESULT	ethene MG/KG RESULT	chloride MG/KG RESULT	MG/KG RESULT	chloride MG/KG RESULT
DB-12	10.40	08-24-88	88341014	0.053	0.21	<0.010	0.22	38	2.0
DB-13	2.50	08-29-88	88351022	<0.010	<0.010	<0.010	0.050	<0.025	<0.025
DB-13	5.30	08-29-88	88351023	0.97	2.8	0.68	0.088	0.21	0.025
DB-13	7.60	08-29-88	88351024	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
DB-13	10.00	08-29-88	88351025	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
DB-14	3.50	08-29-88	88351030	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
DB-14	5.20	08-29-88	88351031	<0.010	<0.010	0.042	<0.050	0.077	<0.025
DB-14	8.30	08-29-88	88351032	0.41	0.28	0.059	<0.050	0.076	<0.025
DB-14	10.50	08-29-88	88351033	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
DB-15	2.70	08-29-88	88351026	<0.010	<0.010	0.22	0.099	<0.025	<0.025
DB-15	5.80	08-29-88	88351027	<0.010	0.084	1.6	0.12	0.90	<0.025
DB-15	7.90	08-29-88	88351028	<0.010	<0.010	<0.010	<0.050	<0.025	0.64
DB-15	10.50	08-29-88	88351029	0.040	0.29	0.049	<0.050	0.10	0.25
DB-16	2.80	08-29-88	88351018	<0.010	0.062	<0.010	<0.050	0.065	<0.025
DB-16	5.40	08-29-88	88351019	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
DB-16	7.90	08-29-88	88351020	<0.010	0.048	<0.010	<0.050	<0.025	<0.025
DB-16	10.10	08-29-88	88351021	0.97	2.8	0.68	0.088	0.21	<0.025
DB-17	2.70	08-29-88	88351034	0.038	0.066	0.091	<0.050	0.10	<0.025
DB-17	5.10	08-29-88	88351035	0.099	0.76	1.0	<0.050	0.067	<0.025
DB-17	7.80	08-29-88	88351036	<0.010	<0.010	<0.010	0.18	<0.025	<0.025
DB-17	10.20	08-29-88	88351037	1.7	1.2	1.4	1.0	1.8	<0.025
DMW-2	34.50	10-15-88	DMW-2/34.5	0.12	0.12	0.11	0.52	0.25	<0.0250
DMW-2	46.50	10-15-88	DMW-2/46.5	<0.010	0.56	0.22	1.5	0.99	0.14
DMW-2	49.30	10-20-88	DMW-2/49.3	0.0880	0.0340	<0.010	0.14	<0.0250	<0.0250
DMW-2	56.50	10-20-88	DMW-2/56.5	<0.010	<0.010	<0.010	0.13	<0.0250	<0.0250
SMW-07	3.00	10-14-88	SMW-7/3.0	1800	1700	1800	320	580	<13
SMW-07	5.30	10-14-88	SMW-7/5.3	2300	1500	3100	210	1400	<13
SMW-07	7.50	10-14-88	SMW-7/7.5	6.5	3.4	12	6.9	19.6	<0.0250
SMW-07	10.70	10-14-88	SMW-7/10.7	1100	510	100.0	400	4300	<13.
SMW-08	2.50	08-24-88	88341006	<0.010	<0.010	<0.010	0.12	<0.025	<0.025
SMW-08	5.30	08-24-88	88341007	<0.010	<0.010	<0.010	0.090	<0.025	<0.025
SMW-08	8.00	08-24-88	88341008	<0.010	<0.010	<0.010	0.14	<0.025	<0.025
SMW-08	10.00	08-24-88	88341009	<0.010	<0.010	<0.010	0.09	<0.025	<0.025
SMW-08	19.00	08-24-88	88341010	<0.010	<0.010	<0.010	0.13	<0.025	<0.025
SMW-11	2.60	08-25-88	88341015	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
SMW-11	6.00	08-25-88	88341016	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
SMW-11	8.50	08-25-88	88341017	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
SMW-11	9.60	08-25-88	88341018	<0.010	<0.010	<0.010	<0.050	<0.025	<0.025
SMW-12	2.00	08-23-88	88341003	<0.010	<0.010	<0.010	0.13	<0.025	<0.025
SMW-12	6.70	08-23-88	88341004	<0.010	0.20	0.097	0.19	<0.025	<0.025
SMW-12	10.50	08-23-88	88341005	0.11	0.17	0.087	0.12	<0.025	<0.025

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020

SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland**Harding Lawson Associates**

STATION	SAMPLE DEPTH (FT)	SAMPLE DATE	SAMPLE NUMBER	trans-1,2-Dichloroethene MG/KG RESULT	1,1-Dichloro-ethene MG/KG RESULT	Ethylbenzene MG/KG RESULT	meta Xylene MG/KG RESULT	ortho & para Xylene MG/KG RESULT	Benzene MG/KG RESULT
DB-1	1.50	08-04-88	DB-1/1.5	<50.	<50.	NT	NT	NT	NT
DB-1	3.00	08-04-88	DB-1/3.0	<0.2	<0.2	NT	NT	NT	NT
DB-1	5.50	08-04-88	DB-1/5.5	<0.5	<0.5	NT	NT	NT	NT
DB-1	8.00	08-04-88	DB-1/8.0	<0.2	<0.2	NT	NT	NT	NT
DB-1	10.00	08-04-88	DB-1/10.0	<5.0	<5.0	NT	NT	NT	NT
DB-2	1.20	08-05-88	DB-2/1.2	<2.0	<2.0	NT	NT	NT	NT
DB-2	3.00	08-05-88	DB-2/3.0	<10.	<10.	NT	NT	NT	NT
DB-2	5.50	08-05-88	DB-2/5.5	<1.0	<1.0	NT	NT	NT	NT
DB-2	8.00	08-05-88	DB-2/8.0	<5.0	<5.0	NT	NT	NT	NT
DB-2	10.50	08-05-88	DB-2/10.5	<25.	<25.	NT	NT	NT	NT
DB-3	1.00	08-05-88	DB-3/1.0	<0.5	<0.5	NT	NT	NT	NT
DB-3	3.00	08-05-88	DB-3A/3.0	<0.5	<0.5	NT	NT	NT	NT
DB-3	5.00	08-05-88	DB-3A/5.0	<5.0	<5.0	NT	NT	NT	NT
DB-3	8.00	08-05-88	DB-3A/8.0	<0.5	<0.5	NT	NT	NT	NT
DB-3	10.50	08-05-88	DB-3A/10.5	<0.1	<0.1	NT	NT	NT	NT
DB-4	0.80	08-06-88	DB-4/0.8	<0.05	<0.05	NT	NT	NT	NT
DB-4	3.00	08-06-88	DB-4/3.0	<0.1	<0.1	NT	NT	NT	NT
DB-4	5.50	08-06-88	DB-4/5.5	0.31	<0.1	NT	NT	NT	NT
DB-4	8.00	08-06-88	DB-4/8.0	<0.5	<0.5	NT	NT	NT	NT
DB-4	10.50	08-06-88	DB-4/10.5	<0.5	2.1	NT	NT	NT	NT
DB-5	1.50	10-01-87	DB-5/1.5	0.10	0.10	<0.25	<0.25	<0.25	<0.25
DB-5	4.00	10-01-87	DB-5/4.0	<0.0100	<0.0100	<0.0250	<0.0250	<0.025	<0.0250
DB-5	6.50	10-01-87	DB-5/6.5	<0.0100	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250
DB-5	9.00	10-01-87	DB-5/9.0	<0.0100	<0.0100	<0.0250	<0.0250	<0.025	<0.025
DB-6	4.00	10-01-87	DB-6/4.0	<5.00	<5.00	<12.5	<12.5	<12.5	<12.5
DB-6	6.50	10-01-87	DB-6/6.5	<100	<100	<250	<250	<250	<250
DB-6	9.00	10-01-87	DB-6/9.0	<400	<400	<1000	<1000	<1000	<1000
DB-7	2.00	10-02-87	DB-7/2.0	0.50	0.28	32.	82.	75.	<0.50
DB-7	4.00	10-02-87	DB-7/4.0	0.47	<0.0200	0.0790	0.32	0.27	<0.0500
DB-7	6.50	10-02-87	DB-7/6.5	1.5	<0.20	0.57	2.0	1.6	<0.50
DB-8	2.00	10-05-87	DB-8/2.0	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
DB-8	4.50	10-05-87	DB-8/4.5	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
DB-8	7.00	10-05-87	DB-8/7.0	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
DB-8	9.50	10-05-87	DB-8/9.5	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
DB-9	4.50	10-05-87	DB-9/4.5	<0.010	0.015	<0.025	<0.025	<0.025	<0.025
DB-9	7.00	10-05-87	DB-9/7.0	<0.040	<0.040	<0.10	<0.10	<0.10	<0.10
DB-9	9.50	10-05-87	DB-9/9.5	<100.	<100.	<250.	<250.	<250.	<250.
DB-10	2.00	10-05-87	DB-10/2.0	<0.50	<0.50	<1.25	1.3	<1.25	<1.25
DB-10	4.50	10-05-87	DB-10/4.5	<0.010	<0.010	<0.025	0.08	<0.025	<0.025
DB-10	7.00	10-05-87	DB-10/7.0	<0.20	<0.20	0.62	4.8	0.60	<0.50
DB-11	2.70	08-30-88	88351038	<1.0	13.	200	460	360	<2.5
DB-11	5.20	08-30-88	88351039	<1.0	<1.0	65	140	120	<2.5
DB-11	7.30	08-30-88	88351040	<1.0	<1.0	20	29	13	<2.5
DB-11	10.40	08-30-88	88351041	<1.0	<1.0	12.	17	22	<2.5
DB-12	3.80	08-24-88	88341011	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
DB-12	5.60	08-24-88	88341012	<0.010	<0.010	0.17	0.063	0.091	<0.025

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020

PREP. METHOD CODE:

SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

Harding Lawson Associates

STATION	SAMPLE	trans-1,2-Di-chloroethene	1,1-Dichloro-ethene	Ethylbenzene	meta-Xylene	ortho & para-Xylene	Benzene
	DEPTH (FT)	SAMPLE DATE	NUMBER	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT
DB-12	7.70	08-24-88	88341013	<0.010	<0.010	0.19	0.10
DB-12	10.40	08-24-88	88341014	8.6	0.081	4.6	<0.025
DB-13	2.50	08-29-88	88351022	<0.010	<0.010	0.025	<0.025
DB-13	5.30	08-29-88	88351023	0.60	0.090	0.051	<0.025
DB-13	7.60	08-29-88	88351024	<0.010	<0.010	0.095	<0.025
DB-13	10.00	08-29-88	88351025	<0.010	<0.010	0.19	0.55
DB-14	3.50	08-29-88	88351030	<0.010	<0.010	<0.025	<0.025
DB-14	5.20	08-29-88	88351031	<0.010	<0.010	<0.025	<0.025
DB-14	8.30	08-29-88	88351032	<0.010	<0.010	<0.025	<0.025
DB-14	10.50	08-29-88	88351033	<0.010	<0.010	<0.025	<0.025
DB-15	2.70	08-29-88	88351026	<0.010	<0.010	0.17	<0.025
DB-15	5.80	08-29-88	88351027	0.17	<0.010	55.	1.4
DB-15	7.90	08-29-88	88351028	0.64	<0.010	0.54	<0.025
DB-15	10.50	08-29-88	88351029	<0.010	<0.010	<0.010	0.12
DB-16	2.80	08-29-88	88351018	0.075	<0.010	0.33	0.57
DB-16	5.40	08-29-88	88351019	<0.010	<0.010	3.5	0.93
DB-16	7.90	08-29-88	88351020	<0.010	<0.010	<0.025	<0.025
DB-16	10.10	08-29-88	88351021	0.60	0.090	0.051	0.13
DB-17	2.70	08-29-88	88351034	<0.010	<0.010	0.076	<0.025
DB-17	5.10	08-29-88	88351035	0.089	<0.010	0.076	<0.025
DB-17	7.80	08-29-88	88351036	<0.010	<0.010	<0.025	<0.025
DB-17	10.20	08-29-88	88351037	<0.010	<0.010	0.15	0.33
DMW-2	34.50	10-15-88	DMW-2/34.5	<0.010	<0.010	<0.0250	0.11
DMW-2	46.50	10-15-88	DMW-2/46.5	0.0430	<0.010	<0.0250	0.24
DMW-2	49.3	10-20-88	DMW-2/49.3	<0.010	<0.010	<0.025	<0.025
DMW-2	56.5	10-20-88	DMW-2/56.5	<0.010	<0.010	<0.025	<0.025
SMW-7	3.00	10-14-88	SMW-7/3.0	<5	<5	75	280
SMW-7	5.30	10-14-88	SMW-7/5.3	<5	<5	250	660
SMW-7	7.50	10-14-88	SMW-7/7.5	<0.010	0.0180	3.8	13
SMW-7	10.70	10-14-88	SMW-7/10.7	<5	<5	610.	2100.
SMW-8	2.50	08-24-88	88341006	0.021	<0.010	<0.025	<0.025
SMW-8	5.30	08-24-88	88341007	<0.010	<0.010	<0.025	<0.025
SMW-8	8.00	08-24-88	88341008	0.018	<0.010	<0.025	<0.025
SMW-8	10.00	08-24-88	88341009	<0.010	<0.010	<0.025	<0.025
SMW-8	19.00	08-24-88	88341010	0.013	<0.010	<0.025	<0.025
SMW-11	2.60	08-25-88	88341015	<0.010	<0.010	<0.025	<0.025
SMW-11	6.00	08-25-88	88341016	<0.010	<0.010	<0.025	<0.025
SMW-11	8.50	08-25-88	88341017	<0.010	<0.010	<0.025	<0.025
SMW-11	9.60	08-25-88	88341018	<0.010	<0.010	<0.025	<0.025
SMW-12	2.00	08-23-88	88341003	<0.010	<0.010	<0.025	<0.025
SMW-12	6.70	08-23-88	88341004	<0.010	<0.010	<0.025	<0.025
SMW-12	10.50	08-23-88	88341005	0.020	<0.010	<0.025	<0.025

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020

SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

Harding Lawson Associates

STATION	SAMPLE	Bromodichloro-	Bromoform	Bromomethane	Carbon	Chlorobenzene	Chloroethane
	DEPTH (FT)	SAMPLE DATE		MG/KG RESULT	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT
DB-1	1.50	08-04-87	DB-1/1.5	<50	<50	<50	<50
DB-1	3.00	08-04-87	DB-1/3.0	<0.2	<0.2	<0.2	<0.2
DB-1	5.50	08-04-87	DB-1/5.5	<0.5	<0.5	<0.5	<0.5
DB-1	8.00	08-04-87	DB-1/8.0	<0.2	<0.2	0.31	<0.2
DB-1	10.00	08-04-87	DB-1/10.0	<5.0	<5.0	<5.0	<5.0
DB-2	1.20	08-05-87	DB-2/1.2	<2.0	<2.0	<2.0	<2.0
DB-2	3.00	08-05-87	DB-2/3.0	<10.	<10.	<10.	<10.
DB-2	5.50	08-05-87	DB-2/5.5	<1.0	<1.0	<1.0	<1.0
DB-2	8.00	08-05-87	DB-2/8.0	<5.0	<5.0	<5.0	<5.0
DB-2	10.50	08-05-87	DB-2/10.5	<25	<25.	<25.	<25.
DB-3	1.00	08-05-87	DB-3/1.0	<0.5	<0.5	<0.5	<0.5
DB-3	3.00	08-05-87	DB-3A/3.0	<0.5	<0.5	<0.5	<0.5
DB-3	5.00	08-05-87	DB-3A/5.0	<5.0	<5.0	<5.0	<5.0
DB-3	8.00	08-05-87	DB-3A/8.0	<0.5	<0.5	<0.5	<0.5
DB-3	10.50	08-05-87	DB-3A/10.5	<0.1	<0.1	<0.1	<0.1
DB-4	0.80	08-06-87	DB-4/0.8	<0.02	<0.02	<0.02	<0.02
DB-4	3.00	08-06-87	DB-4/3.0	<0.1	<0.1	<0.1	<0.1
DB-4	5.50	08-06-87	DB-4/5.5	<0.1	<0.1	<0.1	0.1
DB-4	8.00	08-06-87	DB-4/8.0	<0.5	<0.5	<0.5	<0.5
DB-4	10.50	08-06-87	DB-4/10.5	<0.5	<0.5	<0.5	<0.5
DB-5	1.50	10-01-87	DB-5/1.5	0.10	0.10	0.10	0.10
DB-5	4.00	10-01-87	DB-5/4.0	<0.0100	<0.0100	<0.0100	<0.0100
DB-5	6.50	10-01-87	DB-5/6.5	<0.0100	<0.0100	<0.0100	<0.0100
DB-5	9.00	10-01-87	DB-5/9.0	<0.0100	<0.0100	<0.0100	<0.0100
DB-6	4.00	10-01-87	DB-6/4.0	<5.00	<5.00	<5.00	<5.00
DB-6	6.50	10-01-87	DB-6/6.5	<100	<100	<100	<100
DB-6	9.00	10-01-87	DB-6/9.0	<400	<400	<400	<400
DB-7	2.00	10-02-87	DB-7/2.0	<0.20	<0.20	<0.20	<0.20
DB-7	4.00	10-02-87	DB-7/4.0	<0.0200	<0.0200	<0.0200	<0.0200
DB-7	6.50	10-02-87	DB-7/6.5	<0.20	<0.20	<0.20	<0.20
DB-8	2.00	10-05-87	DB-8/2.0	<0.010	<0.010	<0.010	<0.010
DB-8	4.50	10-05-87	DB-8/4.5	<0.010	<0.010	<0.010	<0.010
DB-8	7.00	10-05-87	DB-8/7.0	<0.010	<0.010	<0.010	<0.010
DB-8	9.50	10-05-87	DB-8/9.5	<0.010	<0.010	<0.010	<0.010
DB-9	4.50	10-05-87	DB-9/4.5	<0.010	<0.010	<0.010	<0.010
DB-9	7.00	10-05-87	DB-9/7.0	<0.040	<0.040	<0.040	<0.040
DB-9	9.50	10-05-87	DB-9/9.5	<100	<100	<100	<100
DB-10	2.00	10-05-87	DB-10/2.0	<0.50	<0.50	<0.50	<0.50
DB-10	4.50	10-05-87	DB-10/4.5	<0.010	<0.010	<0.010	<0.010
DB-10	7.00	10-05-87	DB-10/7.0	<0.20	<0.20	<0.20	<0.20
DB-11	2.70	08-30-88	88351038	<1.0	<1.0	<2.5	<2.5
DB-11	5.20	08-30-88	88351039	<1.0	<1.0	<2.5	<2.5
DB-11	7.30	08-30-88	88351040	<1.0	<1.0	<2.5	<2.5
DB-11	10.40	08-30-88	88351041	<1.0	<1.0	<2.5	<2.5
DB-12	3.80	08-24-88	88341011	<0.010	<0.010	<0.025	<0.025
DB-12	5.60	08-24-88	88341012	<0.010	<0.010	<0.025	<0.025
DB-12	7.70	08-24-88	88341013	<0.010	<0.010	<0.025	<0.025

REPORT DATE: 01-31-89

TEST METHOD CODE: 8010/20
SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

Harding Lawson Associates

STATION	SAMPLE	Bromodi-chloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane
	DEPTH (FT)	SAMPLE DATE	SAMPLE NUMBER	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT
DB-12	10.40	08-24-88	88341014	<0.010	<0.010	<0.025	<0.025
DB-13	2.50	08-29-88	88351022	<0.010	<0.010	<0.025	<0.025
DB-13	5.30	08-29-88	88351023	<0.010	<0.010	<0.025	<0.025
DB-13	7.60	08-29-88	88351024	<0.010	<0.010	<0.025	<0.025
DB-13	10.00	08-29-88	88351025	<0.010	<0.010	<0.025	<0.025
DB-14	3.50	08-29-88	88351030	<0.010	<0.010	<0.025	<0.025
DB-14	5.20	08-29-88	88351031	<0.010	<0.010	<0.025	<0.025
DB-14	8.30	08-29-88	88351032	<0.010	<0.010	<0.025	<0.025
DB-14	10.50	08-29-88	88351033	<0.010	<0.010	<0.025	<0.025
DB-15	2.70	08-29-88	88351026	<0.010	<0.010	<0.025	<0.025
DB-15	5.80	08-29-88	88351027	<0.010	<0.010	<0.025	<0.025
DB-15	7.90	08-29-88	88351028	<0.010	<0.010	<0.025	<0.025
DB-15	10.50	08-29-88	88351029	<0.010	<0.010	<0.025	<0.025
DB-16	2.80	08-29-88	88351018	<0.010	<0.010	<0.025	<0.025
DB-16	5.40	08-29-88	88351019	<0.010	<0.010	<0.025	<0.025
DB-16	7.90	08-29-88	88351020	<0.010	<0.010	<0.025	<0.025
DB-16	10.10	08-29-88	88351021	<0.010	<0.010	<0.025	<0.025
DB-17	2.70	08-29-88	88351034	<0.010	<0.010	<0.025	<0.025
DB-17	5.10	08-29-88	88351035	<0.010	<0.010	<0.025	<0.025
DB-17	7.80	08-29-88	88351036	<0.010	<0.010	<0.025	<0.025
DB-17	10.20	08-29-88	88351037	<0.010	<0.010	<0.025	<0.025
DMW-2	34.50	10-15-88	DMW-2/34.5	<0.010	<0.010	<0.0250	<0.0250
DMW-2	46.50	10-15-88	DMW-2/46.5	<0.010	<0.010	<0.0250	<0.0250
DMW-2	49.30	10-20-88	DMW-2/49.3	<0.010	<0.010	<0.0250	<0.0250
DMW-2	56.50	10-20-88	DMW-2/56.5	<0.010	<0.010	<0.0250	<0.0250
SMW-7	3.00	10-14-88	SMW-7/3.0	<5	<5	<13	<13
SMW-7	5.30	10-14-88	SMW-7/5.3	<5	<5	<13	<13
SMW-7	7.50	10-14-88	SMW-7/7.5	<0.010	<0.010	<0.0250	<0.0250
SMW-7	10.70	10-14-88	SMW-7/10.7	<5	<5	<13	<13
SMW-8	2.50	08-24-88	88341006	<0.010	<0.010	<0.025	<0.025
SMW-8	5.30	08-24-88	88341007	<0.010	<0.010	<0.025	<0.025
SMW-8	8.00	08-24-88	88341008	<0.010	<0.010	<0.025	<0.025
SMW-8	10.00	08-24-88	88341009	<0.010	<0.010	<0.025	<0.025
SMW-8	19.00	08-24-88	88341010	<0.010	<0.010	<0.025	<0.025
SMW-11	2.60	08-25-88	88341015	<0.010	<0.010	<0.025	<0.025
SMW-11	6.00	08-25-88	88341016	<0.010	<0.010	<0.025	<0.025
SMW-11	8.50	08-25-88	88341017	<0.010	<0.010	<0.025	<0.025
SMW-11	9.60	08-25-88	88341018	<0.010	<0.010	<0.025	<0.025
SMW-12	2.00	08-23-88	88341003	<0.010	<0.010	<0.025	<0.025
SMW-12	6.70	08-23-88	88341004	<0.010	<0.010	<0.025	<0.025
SMW-12	10.50	08-23-88	88341005	<0.010	<0.010	<0.025	<0.025

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020

SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

Harding Lawson Associates

STATION	SAMPLE DEPTH (FT)	SAMPLE DATE	SAMPLE NUMBER	Chloroform MG/KG RESULT	Chloromethane MG/KG RESULT	1,2-Dichloro-benzene MG/KG RESULT	1,3-Dichloro-benzene MG/KG RESULT	1,4-Dichloro-benzene MG/KG RESULT	1,2 & 1,4-Dichlorobenzene MG/KG RESULT
DB-1	1.50	08-04-87	DB-1/1.5	<50	<50	---	<125	---	<125
DB-1	3.00	08-04-87	DB-1/3.0	<0.2	<0.2	---	<0.625	---	<0.625
DB-1	5.50	08-04-87	DB-1/5.5	<0.5	<0.5	---	<1.250	---	<1.250
DB-1	8.00	08-04-87	DB-1/8.0	<0.2	<0.2	---	<0.625	---	<0.625
DB-1	10.00	08-04-87	DB-1/10.0	<5.0	<5.0	---	<12.50	---	<12.50
DB-2	1.20	08-05-87	DB-2/1.2	<2.0	<2.0	---	<5.0	---	<5.0
DB-2	3.00	08-05-87	DB-2/3.0	<10	<10	---	<25	---	<25
DB-2	5.50	08-05-87	DB-2/5.5	<1.0	<1.0	---	<2.5	---	<2.5
DB-2	8.00	08-05-87	DB-2/8.0	<5.0	<5.0	---	<12	---	<12
DB-2	10.50	08-05-87	DB-2/10.5	<25	<25	---	<62	---	<62
DB-3	1.00	08-05-87	DB-3/1.0	<0.5	<0.5	---	<1.2	---	<1.2
DB-3	3.00	08-05-87	DB-3A/3.0	<0.5	<0.5	---	<1.2	---	<1.2
DB-3	5.00	08-05-87	DB-3A/5.0	<5.0	<5.0	---	<12	---	<12
DB-3	8.00	08-05-87	DB-3A/8.0	<0.5	<0.5	---	<1.2	---	<1.2
DB-3	10.50	08-05-87	DB-3A/10.5	<0.1	<0.1	---	<0.25	---	<0.25
DB-4	0.80	08-06-87	DB-4/0.8	<0.02	<0.02	---	<0.050	---	<0.050
DB-4	3.00	08-06-87	DB-4/3.0	<0.1	<0.1	---	<0.250	---	<0.250
DB-4	5.50	08-06-87	DB-4/5.5	0.1	0.1	---	<0.250	---	<0.250
DB-4	8.00	08-06-87	DB-4/8.0	<0.5	<0.5	---	<1.250	---	<1.250
DB-4	10.50	08-06-87	DB-4/10.5	<0.5	<0.5	---	<1.250	---	<1.250
DB-5	1.50	10-01-87	DB-5/1.5	0.10	0.10	<0.25	<0.25	<0.25	---
DB-5	4.00	10-01-87	DB-5/4.0	<0.0100	<0.0100	<0.0250	<0.0250	<0.0250	---
DB-5	6.50	10-01-87	DB-5/6.5	<0.0100	<0.0100	<0.0250	<0.0250	<0.0250	---
DB-5	9.00	10-01-87	DB-5/9.0	<0.0100	<0.0100	<0.0250	<0.0250	<0.0250	---
DB-6	4.00	10-01-87	DB-6/4.0	<5.00	<5.00	<12.5	<12.5	<12.5	---
DB-6	6.50	10-01-87	DB-6/6.5	<100	<100	<250	<250	<250	---
DB-6	9.00	10-01-87	DB-6/9.0	<400	<400	<1000	<1000	<1000	---
DB-7	2.00	10-02-87	DB-7/2.0	<0.20	<0.20	<0.50	<0.50	<0.50	---
DB-7	4.00	10-02-87	DB-7/4.0	<0.0200	<0.0200	<0.0500	<0.0500	<0.0500	---
DB-7	6.50	10-02-87	DB-7/6.5	<0.20	<0.20	<0.50	<0.50	<0.50	---
DB-8	2.00	10-05-87	DB-8/2.0	<0.010	<0.010	<0.025	<0.025	<0.025	---
DB-8	4.50	10-05-87	DB-8/4.5	<0.010	<0.010	<0.025	<0.025	<0.025	---
DB-8	7.00	10-05-87	DB-8/7.0	<0.010	<0.010	<0.025	<0.025	<0.025	---
DB-8	9.50	10-05-87	DB-8/9.5	<0.010	<0.010	<0.025	<0.025	<0.025	---
DB-9	4.50	10-05-87	DB-9/4.5	<0.010	<0.010	<0.025	<0.025	<0.025	---
DB-9	7.00	10-05-87	DB-9/7.0	<0.040	<0.040	<0.10	<0.10	<0.10	---
DB-9	9.50	10-05-87	DB-9/9.5	<100	<100	<250	<250	<250	---
DB-10	2.00	10-05-87	DB-10/2.0	<0.50	<0.50	<1.25	<1.25	<1.25	---
DB-10	4.50	10-05-87	DB-10/4.5	<0.010	<0.010	<0.025	<0.025	<0.025	---
DB-10	7.00	10-05-87	DB-10/7.0	<0.20	<0.20	<0.50	<0.50	<0.50	---
DB-11	2.70	08-30-88	88351038	<1.0	<10	---	<2.5	---	<2.5
DB-11	5.20	08-30-88	88351039	<1.0	<10	---	<2.5	---	<2.5
DB-11	7.30	08-30-88	88351040	<1.0	<10	---	<2.5	---	<2.5
DB-11	10.40	08-30-88	88351041	<1.0	<10	---	<2.5	---	<2.5
DB-12	3.80	08-24-88	88341011	<0.010	<0.100	---	<0.025	---	<0.025
DB-12	5.60	08-24-88	88341012	<0.010	<0.100	---	<0.025	---	<0.025
DB-12	7.70	08-24-88	88341013	<0.010	<0.100	---	<0.025	---	<0.025
DB-12	10.40	08-24-88	88341014	<0.010	<0.100	---	<0.025	---	<0.025

REPORT DATE: 01-31-89

TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

TEST METHOD CODE: EPA 8010/8020

PREP. METHOD CODE:

SAMPLE DATES: 01-aug-1987
through 31-jan-1989

Harding Lawson Associates

STATION	SAMPLE	DEPTH (FT)	SAMPLE	Chloroform	Chloromethane	1,2-Dichloro- benzene	1,3-Dichloro- benzene	1,4-Dichloro- benzene	1,2 & 1,4-Di- chlorobenzene
	DATE		NUMBER	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT	MG/KG RESULT
DB-13	2.50	08-29-88	88351022	<0.010	<0.100	---	<0.025	---	<0.025
DB-13	5.30	08-29-88	88351023	<0.010	<0.100	---	<0.025	---	<0.025
DB-13	7.60	08-29-88	88351024	<0.010	<0.10	---	<0.025	---	<0.025
DB-13	10.00	08-29-88	88351025	<0.010	<0.10	---	<0.025	---	<0.025
DB-14	3.50	08-29-88	88351030	<0.010	<0.10	---	<0.025	---	<0.025
DB-14	5.20	08-29-88	88351031	<0.010	<0.10	---	<0.025	---	<0.025
DB-14	8.30	08-29-88	88351032	<0.010	<0.10	---	<0.025	---	<0.025
DB-14	10.50	08-29-88	88351033	<0.010	<0.10	---	<0.025	---	<0.025
DB-15	2.70	08-29-88	88351026	<0.010	<0.10	---	<0.025	---	<0.025
DB-15	5.80	08-29-88	88351027	<0.010	<0.10	---	<0.025	---	<0.025
DB-15	7.90	08-29-88	88351028	<0.010	<0.10	---	<0.025	---	<0.025
DB-15	10.50	08-29-88	88351029	<0.010	<0.10	---	<0.025	---	<0.025
DB-16	2.80	08-29-88	88351018	<0.010	<0.10	---	<0.025	---	<0.025
DB-16	5.40	08-29-88	88351019	<0.010	<0.100	---	<0.025	---	<0.025
DB-16	7.90	08-29-88	88351020	<0.010	<0.100	---	<0.025	---	<0.025
DB-16	10.10	08-29-88	88351021	<0.010	<0.100	---	<0.025	---	<0.025
DB-17	2.70	08-29-88	88351034	<0.010	<0.10	---	<0.025	---	<0.025
DB-17	5.10	08-29-88	88351035	<0.010	<0.10	---	<0.025	---	<0.025
DB-17	7.80	08-29-88	88351036	<0.010	<0.10	---	<0.025	---	<0.025
DB-17	10.20	08-29-88	88351037	<0.010	<0.10	---	<0.025	---	<0.025
DMW-2	34.50	10-15-88	DMW-2/34.5	<0.010	<0.1	---	<0.0250	---	<0.0250
DMW-2	46.50	10-15-88	DMW-2/46.5	<0.010	<0.1	---	<0.0250	---	<0.0250
DMW-2	49.30	10-20-88	DMW-2/49.3	<0.010	<0.1	<0.0250	<0.0250	<0.0250	---
DMW-2	56.50	10-20-88	DMW-2/56.5	<0.010	<0.1	<0.0250	<0.0250	<0.0250	---
SMW-07	3.00	10-14-88	SMW-7/3.0	<5	<50	---	<13	---	<13
SMW-07	5.30	10-14-88	SMW-7/5.3	<5	<50	---	<13	---	<13
SMW-07	7.50	10-14-88	SMW-7/7.5	<0.010	<0.1	---	<0.0250	---	<0.0250
SMW-07	10.70	10-14-88	SMW-7/10.7	<5	<50	---	<13	---	<13
SMW-08	2.50	08-24-88	88341006	<0.010	<0.100	---	<0.025	---	<0.025
SMW-08	5.30	08-24-88	88341007	<0.010	<0.100	---	<0.025	---	<0.025
SMW-08	8.00	08-24-88	88341008	<0.010	<0.100	---	<0.025	---	<0.025
SMW-08	10.00	08-24-88	88341009	<0.010	<0.100	---	<0.025	---	<0.025
SMW-08	19.00	08-24-88	88341010	<0.010	<0.100	---	<0.025	---	<0.025
SMW-11	2.60	08-25-88	88341015	<0.010	<0.100	---	<0.025	---	<0.025
SMW-11	6.00	08-25-88	88341016	<0.010	<0.100	---	<0.025	---	<0.025
SMW-11	8.50	08-25-88	88341017	<0.010	<0.100	---	<0.025	---	<0.025
SMW-11	9.60	08-25-88	88341018	<0.010	<0.100	---	<0.025	---	<0.025
SMW-12	2.00	08-23-88	88341003	<0.010	<0.100	---	<0.025	---	<0.025
SMW-12	6.70	08-23-88	88341004	<0.010	<0.100	---	<0.025	---	<0.025
SMW-12	10.50	08-23-88	88341005	<0.010	<0.100	---	<0.025	---	<0.025

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020

SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

Harding Lawson Associates

STATION	SAMPLE	SAMPLE	Dibromo-	1,1-Dichloro-	1,2-Dichloro-	1,2-Dichloro-	cis-1,3-Di-	trans-1,3-Di-	
	DEPTH	DATE	NUMBER	chloromethane	ethane	ethane	propane	chloropropene	chloropropene
	(FT)		MG/KG	RESULT	MG/KG	RESULT	MG/KG	RESULT	MG/KG
DB-1	1.50	08-04-87	DB-1/1.5	<50	<50	<50	<50	<50	<50
DB-1	3.00	08-04-87	DB-1/3.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
DB-1	5.50	08-04-87	DB-1/5.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DB-1	8.00	08-04-87	DB-1/8.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
DB-1	10.00	08-04-87	DB-1/10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
DB-2	1.20	08-05-87	DB-2/1.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
DB-2	3.00	08-05-87	DB-2/3.0	<10	<10	<10	<10	<10	<10
DB-2	5.50	08-05-87	DB-2/5.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
DB-2	8.00	08-05-87	DB-2/8.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
DB-2	10.50	08-05-87	DB-2/10.5	<25	<25.	<25.	<25.	<25.	<25.
DB-3	1.00	08-05-87	DB-3/1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DB-3	3.00	08-05-87	DB-3A/3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DB-3	5.00	08-05-87	DB-3A/5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
DB-3	8.00	08-05-87	DB-3A/8.0	<0.5	1.5	<0.5	<0.5	<0.5	<0.5
DB-3	10.50	08-05-87	DB-3A/10.5	<0.1	0.41	<0.1	<0.1	<0.1	<0.1
DB-4	0.80	08-06-87	DB-4/0.8	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
DB-4	3.00	08-06-87	DB-4/3.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
DB-4	5.50	08-06-87	DB-4/5.5	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
DB-4	8.00	08-06-87	DB-4/8.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DB-4	10.50	08-06-87	DB-4/10.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DB-5	1.50	10-01-87	DB-5/1.5	0.10	0.10	0.10	0.10	0.10	0.10
DB-5	4.00	10-01-87	DB-5/4.0	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DB-5	6.50	10-01-87	DB-5/6.5	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DB-5	9.00	10-01-87	DB-5/9.0	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DB-6	4.00	10-01-87	DB-6/4.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
DB-6	6.50	10-01-87	DB-6/6.5	<100	<100	<100	<100	<100	<100
DB-6	9.00	10-01-87	DB-6/9.0	<400	<400	<400	<400	<400	<400
DB-7	2.00	10-02-87	DB-7/2.0	<0.20	0.62	<0.20	<0.20	<0.20	<0.20
DB-7	4.00	10-02-87	DB-7/4.0	<0.0200	0.23	<0.0200	<0.0200	<0.0200	<0.0200
DB-7	6.50	10-02-87	DB-7/6.5	<0.20	0.55	<0.20	<0.20	<0.20	<0.20
DB-8	2.00	10-05-87	DB-8/2.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DB-8	4.50	10-05-87	DB-8/4.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DB-8	7.00	10-05-87	DB-8/7.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DB-8	9.50	10-05-87	DB-8/9.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DB-9	4.50	10-05-87	DB-9/4.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DB-9	7.00	10-05-87	DB-9/7.0	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
DB-9	9.50	10-05-87	DB-9/9.5	<100	<100	<100	<100	<100	<100
DB-10	2.00	10-05-87	DB-10/2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
DB-10	4.50	10-05-87	DB-10/4.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DB-10	7.00	10-05-87	DB-10/7.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
DB-11	2.70	08-30-88	88351038	<1.0	16	<1.0	<1.0	<1.0	<1.0
DB-11	5.20	08-30-88	88351039	<1.0	9.7	<1.0	<1.0	<1.0	<1.0
DB-11	7.30	08-30-88	88351040	<1.0	7.3	<1.0	<1.0	<1.0	<1.0
DB-11	10.40	08-30-88	88351041	<1.0	18	<1.0	<1.0	<1.0	<1.0
DB-12	3.80	08-24-88	88341011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
DB-12	5.60	08-24-88	88341012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020
SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland**Harding Lawson Associates**

STATION	SAMPLE	DIBROMO-	1,1-DICHLORO-	1,2-DICHLORO-	1,2-DICHLORO-	CIS-1,3-DI-	TRANS-1,3-DI-
	DEPTH (FT)	CHLOROMETHANE MG/KG RESULT	ETHANE MG/KG RESULT	ETHANE MG/KG RESULT	PROPANE MG/KG RESULT	CHLOROPROPENE MG/KG RESULT	CHLOROPROPENE MG/KG RESULT
DB-12	7.70	08-24-88 88341013	<0.010	<0.010	<0.010	<0.010	<0.010
DB-12	10.40	08-24-88 88341014	<0.010	4.6	<0.010	<0.010	<0.010
DB-13	2.50	08-29-88 88351022	<0.010	<0.010	<0.010	<0.010	<0.010
DB-13	5.30	08-29-88 88351023	<0.010	<0.010	0.20	<0.010	<0.010
DB-13	7.60	08-29-88 88351024	<0.010	<0.010	<0.010	<0.010	<0.010
DB-13	10.00	08-29-88 88351025	<0.010	<0.010	<0.010	<0.010	<0.010
DB-14	3.50	08-29-88 88351030	<0.010	<0.010	<0.010	<0.010	<0.010
DB-14	5.20	08-29-88 88351031	<0.010	<0.010	<0.010	<0.010	<0.010
DB-14	8.30	08-29-88 88351032	<0.010	<0.010	<0.010	<0.010	<0.010
DB-14	10.50	08-29-88 88351033	<0.010	<0.010	<0.010	<0.010	<0.010
DB-15	2.70	08-29-88 88351026	<0.010	<0.010	<0.010	<0.010	<0.010
DB-15	5.80	08-29-88 88351027	<0.010	<0.010	<0.010	<0.010	<0.010
DB-15	7.90	08-29-88 88351028	<0.010	<0.010	<0.010	<0.010	<0.010
DB-15	10.50	08-29-88 88351029	<0.010	<0.010	<0.010	<0.010	<0.010
DB-16	2.80	08-29-88 88351018	<0.010	<0.010	<0.010	<0.010	<0.010
DB-16	5.40	08-29-88 88351019	<0.010	<0.010	<0.010	<0.010	<0.010
DB-16	7.90	08-29-88 88351020	<0.010	<0.010	<0.010	<0.010	<0.010
DB-16	10.10	08-29-88 88351021	<0.010	<0.010	0.20	<0.010	<0.010
DB-17	2.70	08-29-88 88351034	<0.010	<0.010	<0.010	<0.010	<0.010
DB-17	5.10	08-29-88 88351035	<0.010	0.093	<0.010	<0.010	<0.010
DB-17	7.80	08-29-88 88351036	<0.010	<0.010	<0.010	<0.010	<0.010
DB-17	10.20	08-29-88 88351037	<0.010	0.067	<0.010	<0.010	<0.010
DMW-2	34.50	10-15-88 DMW-2/34.5	<0.010	<0.010	<0.010	<0.010	<0.010
DMW-2	46.50	10-15-88 DMW-2/46.5	<0.010	0.0350	<0.010	<0.010	<0.010
DMW-2	49.30	10-20-88 DMW-2/49.3	<0.010	<0.010	<0.010	<0.010	<0.010
DMW-2	56.50	10-20-88 DMW-2/56.5	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-7	3.00	10-14-88 SMW-7/3.0	<5	<5	<5	<5	<5
SMW-7	5.30	10-14-88 SMW-7/5.3	<5	<5	<5	<5	<5
SMW-7	7.50	10-14-88 SMW-7/7.5	<0.010	0.070	<0.010	<0.010	<0.010
SMW-7	10.70	10-14-88 SMW-7/10.7	<5	14	<5	<5	<5
SMW-8	2.50	08-24-88 88341006	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-8	5.30	08-24-88 88341007	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-8	8.00	08-24-88 88341008	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-8	10.00	08-24-88 88341009	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-8	19.00	08-24-88 88341010	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-11	2.60	08-25-88 88341015	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-11	6.00	08-25-88 88341016	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-11	8.50	08-25-88 88341017	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-11	9.60	08-25-88 88341018	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-12	2.00	08-23-88 88341003	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-12	6.70	08-23-88 88341004	<0.010	<0.010	<0.010	<0.010	<0.010
SMW-12	10.50	08-23-88 88341005	<0.010	<0.010	0.025	<0.010	<0.010

REPORT DATE: 01-31-89

TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

TEST METHOD CODE: EPA 8010/8020

SAMPLE DATES: 01-aug-1987

through 31-jan-1989

Harding Lawson Associates

STATION	SAMPLE	SAMPLE	SAMPLE	1,1,2,2-Tetra-	1,1,2-Tri-	Trichloro-	Dichlorodi-
	DEPTH			NUMBER	chloroethane	chloroethane	fluoromethane
				MG/KG	RESULT	MG/KG	MG/KG
				RESULT	RESULT	RESULT	RESULT
DB-1	1.50	08-04-87	DB-1/1.5	<50	<50	<500.	<50
DB-1	3.00	08-04-87	DB-1/3.0	<0.2	<0.2	<2.5	<0.2
DB-1	5.50	08-04-87	DB-1/5.5	<.5	<0.5	<5.0	<0.5
DB-1	8.00	08-04-87	DB-1/8.0	<0.2	<0.2	<2.5	<0.2
DB-1	10.00	08-04-87	DB-1/10.0	<5.0	<5.0	<50.	<5.0
DB-2	1.20	08-05-87	DB-2/1.2	<2.0	<2.0	<20.	<2.0
DB-2	3.00	08-05-87	DB-2/3.0	<10	<10	<100.	<10.
DB-2	5.50	08-05-87	DB-2/5.5	<1.0	<1.0	<10.	<1.0
DB-2	8.00	08-05-87	DB-2/8.0	<5.0	<5.0	<50.	<5.0
DB-2	10.50	08-05-87	DB-2/10.5	<25	<25	<250.	<25
DB-3	1.00	08-05-87	DB-3/1.0	<0.5	<0.5	<5.0	<0.5
DB-3	3.00	08-05-87	DB-3A/3.0	<0.5	<0.5	<5.	<0.5
DB-3	5.00	08-05-87	DB-3A/5.0	<5.0	<5.0	<50.	<5.0
DB-3	8.00	08-05-87	DB-3A/8.0	<0.5	<0.5	<5.0	<0.5
DB-3	10.50	08-05-87	DB-3A/10.5	<0.1	<0.1	<1.0	<0.1
DB-4	0.80	08-06-87	DB-4/0.8	<0.02	<0.02	<0.2	<0.02
DB-4	3.00	08-06-87	DB-4/3.0	<0.1	<0.1	<1.0	<0.1
DB-4	5.50	08-06-87	DB-4/5.5	<0.1	<0.1	<1.	<0.1
DB-4	8.00	08-06-87	DB-4/8.0	<0.5	<0.5	<5.0	<0.5
DB-4	10.50	08-06-87	DB-4/10.5	<0.5	<0.5	<5.0	<0.5
DB-5	1.50	10-01-87	DB-5/1.5	<0.10	<0.10	<1.00	0.10
DB-5	4.00	10-01-87	DB-5/4.0	<0.0100	<0.0100	<0.100	<0.0100
DB-5	6.50	10-01-87	DB-5/6.5	<0.0100	<0.0100	<0.100	<0.0100
DB-5	9.00	10-01-87	DB-5/9.0	<0.0100	<0.0100	<0.100	<0.0100
DB-6	4.00	10-01-87	DB-6/4.0	<5.00	<5.00	<50.0	<5.00
DB-6	6.50	10-01-87	DB-6/6.5	<100	<100	<1000	<100
DB-6	9.00	10-01-87	DB-6/9.0	<400	<400	<4000	<400
DB-7	2.00	10-02-87	DB-7/2.0	<0.20	<0.20	<2.0	<0.20
DB-7	4.00	10-02-87	DB-7/4.0	<0.0200	<0.0200	0.20	<0.0200
DB-7	6.50	10-02-87	DB-7/6.5	<0.20	<0.20	<2.0	<0.20
DB-8	2.00	10-05-87	DB-8/2.0	<0.010	<0.010	<0.10	<0.010
DB-8	4.50	10-05-87	DB-8/4.5	<0.010	<0.010	<0.10	<0.010
DB-8	7.00	10-05-87	DB-8/7.0	<0.010	<0.010	<0.10	<0.010
DB-8	9.50	10-05-87	DB-8/9.5	<0.010	<0.010	<0.10	<0.010
DB-9	4.50	10-05-87	DB-9/4.5	<0.010	<0.010	<0.100	<0.010
DB-9	7.00	10-05-87	DB-9/7.0	<0.040	<0.040	<0.40	<0.040
DB-9	9.50	10-05-87	DB-9/9.5	<100	<100	<1000.	<100
DB-10	2.00	10-05-87	DB-10/2.0	<0.50	<0.50	<5.0	<1.25
DB-10	4.50	10-05-87	DB-10/4.5	<0.010	<0.010	<0.10	<0.010
DB-10	7.00	10-05-87	DB-10/7.0	<0.20	<0.20	<2.0	<0.20
DB-11	2.70	08-30-88	88351038	<1.0	<1.0	<2.5	NT
DB-11	5.20	08-30-88	88351039	<1.0	<1.0	<2.5	NT
DB-11	7.30	08-30-88	88351040	<1.0	<1.0	<2.5	NT
DB-11	10.40	08-30-88	88351041	<1.0	<1.0	<2.5	NT
DB-12	3.80	08-24-88	88341011	<0.010	<0.010	<0.025	NT
DB-12	5.60	08-24-88	88341012	<0.010	<0.010	<0.025	NT
DB-12	7.70	08-24-88	88341013	<0.010	<0.010	<0.025	NT

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 8010/8020

SAMPLE DATES: 01-aug-1987
through 31-jan-1989TABLE 4. SUMMARY OF SHALLOW SOIL CHEMISTRY DATA
VWR Portland

Harding Lawson Associates

STATION	SAMPLE	SAMPLE	SAMPLE	1,1,2-Tetra-	1,1,2-Tri-	Trichloro-	Dichlorodi-
	DEPTH	DATE	NUMBER	MG/KG	chloroethane	MG/KG	fluoromethane
	(FT)			RESULT	RESULT	MG/KG	MG/KG
DB-12	10.40	08-24-88	88341014	<0.010	<0.010	<0.025	NT
DB-13	2.50	08-29-88	88351022	<0.010	<0.010	<0.025	NT
DB-13	5.30	08-29-88	88351023	<0.010	0.010	0.025	NT
DB-13	7.60	08-29-88	88351024	<0.010	<0.010	<0.025	NT
DB-13	10.00	08-29-88	88351025	<0.010	<0.010	<0.025	NT
DB-14	3.50	08-29-88	88351030	<0.010	<0.010	<0.025	NT
DB-14	5.20	08-29-88	88351031	<0.010	<0.010	<0.025	NT
DB-14	8.30	08-29-88	88351032	<0.010	<0.010	<0.025	NT
DB-14	10.50	08-29-88	88351033	<0.010	<0.010	<0.025	NT
DB-15	2.70	08-29-88	88351026	<0.010	<0.010	0.054	NT
DB-15	5.80	08-29-88	88351027	<0.010	<0.010	<0.025	NT
DB-15	7.90	08-29-88	88351028	<0.010	<0.010	<0.025	NT
DB-15	10.50	08-29-88	88351029	<0.010	<0.010	<0.025	NT
DB-16	2.80	08-29-88	88351018	<0.010	<0.010	<0.025	NT
DB-16	5.40	08-29-88	88351019	<0.010	<0.010	<0.025	NT
DB-16	7.90	08-29-88	88351020	<0.010	<0.010	<0.025	NT
DB-16	10.10	08-29-88	88351021	<0.010	<0.010	<0.025	NT
DB-17	2.70	08-29-88	88351034	<0.010	<0.010	<0.025	NT
DB-17	5.10	08-29-88	88351035	<0.010	<0.010	<0.025	NT
DB-17	7.80	08-29-88	88351036	<0.010	<0.010	<0.025	NT
DB-17	10.20	08-29-88	88351037	<0.010	<0.010	0.050	NT
DMW-2	34.50	10-15-88	DMW-2/34.5	<0.010	<0.010	<0.0250	NT
DMW-2	46.50	10-15-88	DMW-2/46.5	<0.010	<0.010	0.0550	NT
DMW-2	49.30	10-20-88	DMW-2/49.3	<0.010	<0.010	<0.0250	NT
DMW-2	56.50	10-20-88	DMW-2/56.5	<0.010	<0.010	<0.0250	NT
SMW-7	3.00	10-14-88	SMW-7/3.0	<5.	<5	<13	NT
SMW-7	5.30	10-14-88	SMW-7/5.3	<5	<5	<13	NT
SMW-7	7.50	10-14-88	SMW-7/7.5	<0.010	<0.010	0.0550	NT
SMW-7	10.70	10-14-88	SMW-7/10.7	<5	<5	<13	NT
SMW-8	2.50	08-24-88	88341006	<0.010	<0.010	<0.025	NT
SMW-8	5.30	08-24-88	88341007	<0.010	<0.010	<0.025	NT
SMW-8	8.00	08-24-88	88341008	<0.010	<0.010	<0.025	NT
SMW-8	10.00	08-24-88	88341009	<0.010	<0.010	<0.025	NT
SMW-8	19.00	08-24-88	88341010	<0.010	<0.010	<0.025	NT
SMW-11	2.60	08-25-88	88341015	<0.010	<0.010	<0.025	NT
SMW-11	6.00	08-25-88	88341016	<0.010	<0.010	<0.025	NT
SMW-11	8.50	08-25-88	88341017	<0.010	<0.010	<0.025	NT
SMW-11	9.60	08-25-88	88341018	<0.010	<0.010	<0.025	NT
SMW-12	2.00	08-23-88	88341003	<0.010	<0.010	<0.025	NT
SMW-12	6.70	08-23-88	88341004	<0.010	<0.010	<0.025	NT
SMW-12	10.50	08-23-88	88341005	<0.010	<0.010	<0.025	NT

REPORT DATE: 01-31-89

TABLE 5. SUMMARY OF GROUNDWATER CHEMICAL DATA
VWR Portland

TEST METHOD CODE: EPA 601/602

SAMPLE DATES: 01-aug-1988

through 30-jan-1989

Harding Lawson Associates

STATION	SAMPLE DATE	SAMPLE NUMBER	1,1,1 Trichloroethane ug/L	Trichloroethene ug/L	Tetrachloroethene ug/L	Methylene chloride ug/L	Toluene ug/L	Vinyl chloride ug/L
DMW-1	11-30-88	88113001	<0.2	4.5	<0.2	2.5	1.3	<0.5
DMW-1	08-22-88	88340013	0.7	3.9	0.5	1.7	<0.5	<0.5
DMW-2	11-30-88	88113002	17	28	14	6.3	2.4	<0.5
DMW-2	10-21-88	88100025	29	44	21	13	<0.5	<0.5
SMW-1	12-02-88	88120204	5300	12000	<1000	9200	<2500	<2500
SMW-1	08-15-88	88330001	3800	7800	1700	<500	<250	<250
SMW-2	11-30-88	88113004	<4	<4	<4	41	<10	70
SMW-2	08-15-88	88330002	<2	<2	<2.	<10	<5	50
SMW-3	12-02-88	88120201	3	16	24	9.2	<0.5	4.8
SMW-3	08-15-88	88330003	<4	10	21	<20	<10	<10
SMW-4	12-02-88	88120206	22000	30000	29000	1000	3700	170
SMW-4	08-16-88	88330004	18000	25000	21000	<500	5500	<250
SMW-5	12-02-88	88120207	39000	160000	16000	8300	270	<50
SMW-5	08-15-88	88330005	34000	100000	9100	<5000	<2500	<2500
SMW-6	12-02-88	88120210	140000	470000	39000	200000	2100	<50
SMW-6	08-15-88	88330006	92000	280000	36000	58000	<2500	<2500
SMW-7	12-02-88	88120205	24000	26000	8200	280000	85000	3900
SMW-7	10-21-88	88100023	30000	32000	12000	250000	89000	360
SMW-8	12-02-88	88120202	30	<20	<20	220	6800	160
SMW-8	08-30-88	88350008	<20	<20	<20	<100	1100	550
SMW-9	11-30-88	88113003	<0.2	1.1	<0.2	<1	<0.5	32
SMW-9	08-30-88	88350009	<0.2	3.1	<0.2	1.3	3.7	27
SMW-10	12-01-88	88120101	<0.2	0.5	<0.2	<1	2.5	0.6
SMW-10	08-31-88	88350010	1.4	8.8	1.7	<1.0	1.0	<0.5
SMW-11	12-02-88	88120203	9	38	4.7	31	7	<5
SMW-11	08-31-88	88350011	24	150	17	23	<5	<5
SMW-12	12-02-88	88120208	37000	130000	24000	14000	<2500	<2500
SMW-12	08-31-88	88350012	<32000	110000	11000	11000	<2500	<2500

REPORT DATE: 01-31-89

TABLE 5. SUMMARY OF GROUNDWATER CHEMICAL DATA
VWR Portland

TEST METHOD CODE: EPA 601/602

SAMPLE DATES: 01-aug-1988

through 27-jan-1989

Harding Lawson Associates

STATION	SAMPLE DATE	SAMPLE NUMBER	trans-1,2-Dichloroethene ug/L	1,1-Dichloroethene ug/L	Ethylbenzene ug/L	meta Xylene ug/L	ortho & para Xylene ug/L	Benzene ug/L
DMW-1	11-30-88	88113001	0.8	<0.2	<0.5	<0.5	<0.5	<0.5
DMW-1	08-22-88	88340013	0.4	<0.2	<0.5	<0.5	<0.5	<0.5
DMW-2	11-30-88	88113002	18	<0.2	1.8	<0.5	2.5	<0.5
DMW-2	10-21-88	88100025	1	0.5	1.2	<0.5	5.7	<0.5
SMW-1	12-02-88	88120204	<1000	<1000	<2500	<2500	<2500	<2500
SMW-1	08-15-88	88330001	<100	<100	<250	<250	<250	<250
SMW-2	11-30-88	88113004	270	2.6	<10	<10	<10	<10
SMW-2	08-15-88	88330002	230	3.3	<5	5	5	<5
SMW-3	12-02-88	88120201	46	0.4	<0.5	<0.5	<0.5	<0.5
SMW-3	08-15-88	88330003	43	<4	<10	<10	<10	<10
SMW-4	12-02-88	88120206	3400	<980	270	530	920	<50
SMW-4	08-16-88	88330004	2600	590	530	730	1300	<250
SMW-5	12-02-88	88120207	420	2700	<50	<50	<50	<50
SMW-5	08-15-88	88330005	<1000	<1000	<2500	<2500	<2500	<2500
SMW-6	12-02-88	88120210	14000	15000	3800	1500	200	<50
SMW-6	08-15-88	88330006	17000	7600	<2500	<2500	<2500	<2500
SMW-7	12-02-88	88120205	5100	2000	<2500	6100	5900	<2500
SMW-7	10-21-88	88100023	3700	1700	2900	7400	4400	<250
SMW-8	12-02-88	88120202	190	<20	590	690	560	<50
SMW-8	08-30-88	88350008	890	<20	550	840	740	<50
SMW-9	11-30-88	88113003	31	<0.2	<0.5	<0.5	<0.5	<0.5
SMW-9	08-30-88	88350009	49	<0.2	<0.5	<0.5	<0.5	<0.5
SMW-10	12-01-88	88120101	4.3	<0.2	<0.5	<0.5	<0.5	<0.5
SMW-10	08-31-88	88350010	2.4	<0.2	<0.5	<0.5	<0.5	<0.5
SMW-11	12-02-88	88120203	7.7	<2	<5	<5	<5	<5
SMW-11	08-31-88	88350011	14	<2	<5	<5	<5	<5
SMW-12	12-02-88	88120208	8300	2300	<2500	<2500	<2500	<2500
SMW-12	08-31-88	88350012	5100	<1000	<2500	<2500	<2500	<2500

REPORT DATE: 01-31-89

TABLE 5. SUMMARY OF GROUNDWATER CHEMICAL DATA
VWR Portland

TEST METHOD CODE: EPA 601/602

SAMPLE DATES: 01-aug-1988

through 27-jan-1989

Harding Lawson Associates

STATION	SAMPLE DATE	SAMPLE NUMBER	Bromodichloro-methane ug/L	Bromoform ug/L	Bromomethane ug/L	Carbon Tetrachloride ug/L	Chlorobenzene ug/L	Chloroethane ug/L
DMW-1	11-30-88	88113001	<0.2	<0.2	<0.5	<0.2	<0.5	<0.5
DMW-1	08-22-88	88340013	<0.2	<0.2	<0.5	<0.2	<0.5	<0.5
DMW-2	11-30-88	88113002	<0.2	<0.2	<0.5	<0.2	<0.5	<0.5
DMW-2	10-21-88	88100025	0.5	<0.2	<0.5	<0.2	<0.5	<0.5
SMW-1	12-02-88	88120204	<1000	<1000	<2500	<1000	<2500	<2500
SMW-1	08-15-88	88330001	<100	<100	<250	<100	<250	<250
SMW-2	11-30-88	88113004	<4	<4	<10	<4	<10	<10
SMW-2	08-15-88	88330002	<2.0	<2	<5	<2	<5	<5
SMW-3	12-02-88	88120201	<0.2	<0.2	<0.5	<0.2	<0.5	<0.5
SMW-3	08-15-88	88330003	<4	<4	<10	<4	<10	<10
SMW-4	12-02-88	88120206	<20	<20	<50	<20	<50	<50
SMW-4	08-16-88	88330004	<100	<100	<250	<100	<250	<250
SMW-5	12-02-88	88120207	<20	<20	<50	<20	<50	<50
SMW-5	08-15-88	88330005	<1000	<1000	<2500	<1000	<2500	<2500
SMW-6	12-02-88	88120210	<20	<20	<50	<20	<50	<50
SMW-6	08-15-88	88330006	<1000	<1000	<2500	<1000	<2500	<2500
SMW-7	12-02-88	88120205	<1000	<1000	<2500	<1000	<2500	<2500
SMW-7	10-21-88	88100023	<100	<100	<250	<100	<250	<250
SMW-8	12-02-88	88120202	<20	<20	<50	<20	<50	180
SMW-8	08-30-88	88350008	<20	<20	<50	<20	<50	110
SMW-9	11-30-88	88113003	<0.2	<0.2	<0.5	<0.2	<0.5	0.9
SMW-9	08-30-88	88350009	<0.2	<0.2	<0.5	<0.2	<0.5	<0.5
SMW-10	12-01-88	88120101	<0.2	<0.2	<0.5	<0.2	<0.5	<0.5
SMW-10	08-31-88	88350010	<0.2	<0.2	<0.5	<0.2	<0.5	<0.5
SMW-11	12-02-88	88120203	<2	<2	<5	<2	<5	<5
SMW-11	08-31-88	88350011	<2	<2	<5	<2	<5	<5
SMW-12	12-02-88	88120208	<1000	<1000	<2500	<1000	<2500	<2500
SMW-12	08-31-88	88350012	<1000	<1000	<2500	<1000	<2500	<2500

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 601/602
SAMPLE DATES: 01-aug-1988
through 27-jan-1989TABLE 5. SUMMARY OF GROUNDWATER CHEMICAL DATA
VWR Portland

Harding Lawson Associates

STATION	SAMPLE DATE	SAMPLE NUMBER	Chloroform ug/L	Chloromethane ug/L	1,2-Dichloro-benzene ug/L	1,3-Dichloro-benzene ug/L	1,4-Dichloro-benzene ug/L	1,2 & 1,4- Di-chlorobenzene ug/L
DMW-1	11-30-88	88113001	<0.2	<2	<0.5	<0.5	<0.5	---
DMW-1	08-22-88	88340013	0.2	<2	---	<0.5	---	<0.5
DMW-2	11-30-88	88113002	1.6	<2	<0.5	<0.5	<0.5	---
DMW-2	10-21-88	88100025	4.1	<2	---	<0.5	---	<0.5
SMW-1	12-02-88	88120204	<1000	<1000	<2500	<2500	<2500	---
SMW-1	08-15-88	88330001	<100	<1000	---	<250	---	<250
SMW-2	11-30-88	88113004	<4	<40	<10	<10	<10	---
SMW-2	08-15-88	88330002	<2	<20	---	<5.0	---	<5
SMW-3	12-02-88	88120201	<0.2	<2	<0.5	<0.5	<0.5	---
SMW-3	08-15-88	88330003	<4	<40	---	<10	---	<10
SMW-4	12-02-88	88120206	<20	<200	<50	<50	<50	---
SMW-4	08-16-88	88330004	<100	<1000	---	<250	---	<250
SMW-5	12-02-88	88120207	<20	<2	<50	<50	<50	---
SMW-5	08-15-88	88330005	<1000	<10000	---	<2500	---	<2500
SMW-6	12-02-88	88120210	<20	<200	<50	<50	<50	---
SMW-6	08-15-88	88330006	<1000	<10000	---	<2500	---	<2500
SMW-7	12-02-88	88120205	<1000	<1000	<2500	<2500	<2500	---
SMW-7	10-21-88	88100023	<100	<1000	---	<250	---	<250
SMW-8	12-02-88	88120202	<20	<200	<50	<50	<50	---
SMW-8	08-30-88	88350008	<20	<200	---	<50	---	<50
SMW-9	11-30-88	88113003	<0.2	<2	<0.5	<0.5	<0.5	---
SMW-9	08-30-88	88350009	<0.2	<2	---	<0.5	---	<0.5
SMW-10	12-01-88	88120101	<0.2	<2	<0.5	<0.5	<0.5	---
SMW-10	08-31-88	88350010	<0.2	<2	---	<0.5	---	<0.5
SMW-11	12-02-88	88120203	<2	<20	<5	<5	<5	---
SMW-11	08-31-88	88350011	3	<20	---	<5	---	<5
SMW-12	12-02-88	88120208	<1000	<10000	<2500	<2500	<2500	---
SMW-12	08-31-88	88350012	<1000	<10000	---	<2500	---	<2500

REPORT DATE: 01-31-89

TABLE 5. SUMMARY OF GROUNDWATER CHEMICAL DATA
VWR Portland

TEST METHOD CODE: EPA 601/602

SAMPLE DATES: 01-aug-1988

through 30-jan-1989

Harding Lawson Associates

STATION	SAMPLE DATE	SAMPLE NUMBER	Dibromo-chloromethane ug/L	1,1-Dichloro-ethane ug/L	1,2-Dichloro-ethane ug/L	1,2-Dichloro-chloropropane ug/L	cis-1,3-Di-chloropropene ug/L	trans-1,3-Di-chloropropene ug/L
DMW-1	11-30-88	88113001	<0.2	<0.2	0.9	<0.2	<0.2	<0.2
DMW-1	08-22-88	88340013	<0.2	<0.2	0.6	<0.2	<0.2	<0.2
DMW-2	11-30-88	88113002	<0.2	1.8	<0.2	<0.2	<0.2	<0.2
DMW-2	10-21-88	88100025	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
SMW-1	12-02-88	88120204	<1000	<1000	<1000	<1000	<1000	<1000
SMW-1	08-15-88	88330001	<100	<100	<100	<100	<100	<100
SMW-2	11-30-88	88113004	<4	24	<4	<4	<4	<4
SMW-2	08-15-88	88330002	<2	19	<2	<2	<2	<2
SMW-3	12-02-88	88120201	<0.2	8.1	<0.2	<0.2	<0.2	<0.2
SMW-3	08-15-88	88330003	<4	16	<4	<4	<4	<4
SMW-4	12-02-88	88120206	<20	880	<20	<20	<20	<20
SMW-4	08-16-88	88330004	<100	570	<100	<100	<100	<100
SMW-5	12-02-88	88120207	<200	1100	<20	<20	<20	<20
SMW-5	08-15-88	88330005	<1000	<1000	<1000	<1000	<1000	<1000
SMW-6	12-02-88	88120210	<20	2300	260	<20	<20	<20
SMW-6	08-15-88	88330006	<1000	<1000	<1000	<1000	<1000	<1000
SMW-7	12-02-88	88120205	<1000	7800	<1000	<1000	<1000	8500
SMW-7	10-21-88	88100023	<100	5600	<100	<100	<100	<100
SMW-8	12-02-88	88120202	<20	1200	<20	<20	<20	<20
SMW-8	08-30-88	88350008	<20	1100	<20	<20	<20	<20
SMW-9	11-30-88	88113003	<0.2	16	<0.2	1	<0.2	<0.2
SMW-9	08-30-88	88350009	<0.2	26	<0.2	<0.2	<0.2	<0.2
SMW-10	12-01-88	88120101	<0.2	0.9	<0.2	<0.2	<0.2	<0.2
SMW-10	08-31-88	88350010	<0.2	1.3	<0.2	<0.2	<0.2	<0.2
SMW-11	12-02-88	88120203	<2	2.7	<2	<2	<2	<2
SMW-11	08-31-88	88350011	<2	<2	<2	<2	<2	<2
SMW-12	12-02-88	88120208	<1000	1500	<1000	<1000	<1000	<1000
SMW-12	08-31-88	88350012	<1000	<1000	<1000	<1000	<1000	<1000

REPORT DATE: 01-31-89

TEST METHOD CODE: EPA 601/602
SAMPLE DATES: 01-aug-1988
through 27-jan-1989TABLE 5. SUMMARY OF GROUNDWATER CHEMICAL DATA
VWR Portland

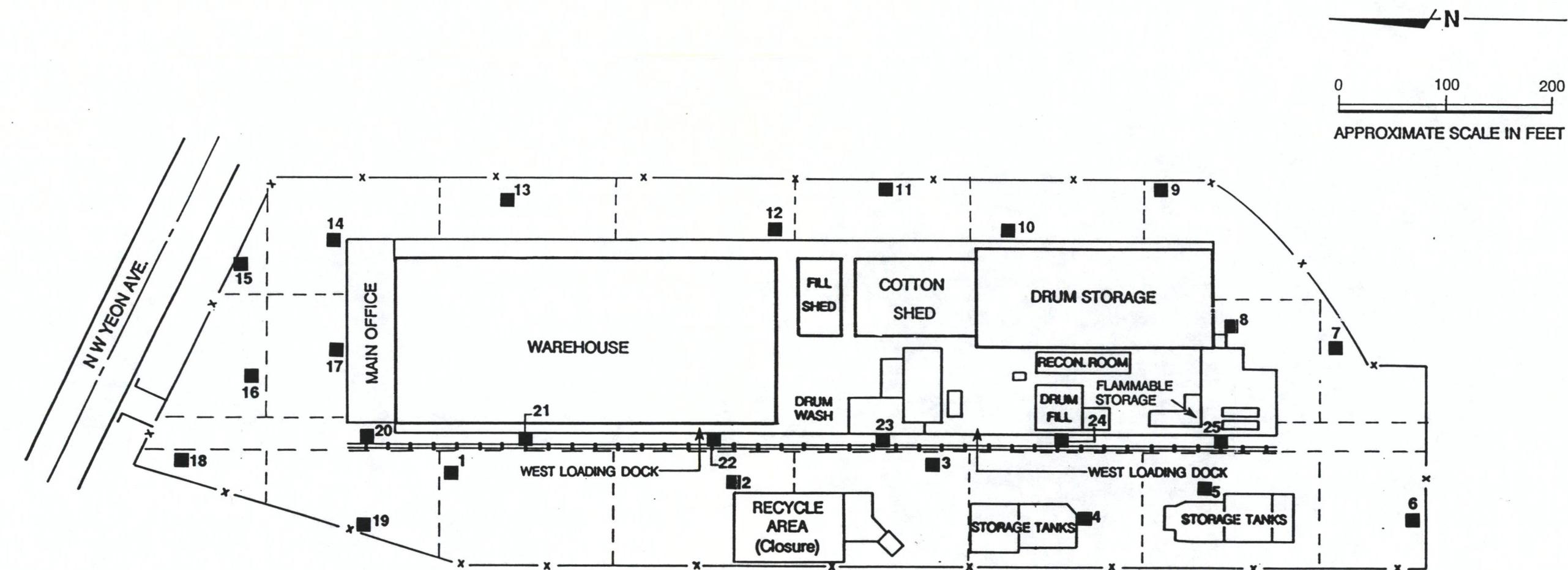
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STATION	SAMPLE DATE	SAMPLE NUMBER	1,1,2,2-Tetra-chloroethane ug/L	1,1,2-Tri-chloroethane ug/L	Trichloro-fluoromethane ug/L
DMW-1	11-30-88	88113001	<0.2	<0.2	<0.5
DMW-1	08-22-88	88340013	<0.2	<0.2	<0.5
DMW-2	11-30-88	88113002	<0.2	<0.2	<0.5
DMW-2	10-21-88	88100025	<0.2	<0.2	<0.5
SMW-1	12-02-88	88120204	<1000	<1000	<2500
SMW-1	08-15-88	88330001	<100	<100	<250
SMW-2	11-30-88	88113004	<4	<4	<10
SMW-2	08-15-88	88330002	<2	<2	<5
SMW-3	12-02-88	88120201	<0.2	<0.2	<0.5
SMW-3	08-15-88	88330003	<4	<4	<10
SMW-4	12-02-88	88120206	<20	<20	<50
SMW-4	08-16-88	88330004	<100	<100	<250
SMW-5	12-02-88	88120207	<20	<20	<50
SMW-5	08-15-88	88330005	<1000	<1000	<2500
SMW-6	12-02-88	88120210	<20	<20	<50
SMW-6	08-15-88	88330006	<1000	<1000	<2500
SMW-7	12-02-88	88120205	<1000	<1000	<2500
SMW-7	10-21-88	88100023	<100	<100	<250
SMW-8	12-02-88	88120202	<20	<20	<50
SMW-8	08-30-88	88350008	<20	<20	<50
SMW-9	11-30-88	88113003	<0.2	<0.2	<0.5
SMW-9	08-30-88	88350009	<0.2	<0.2	<0.5
SMW-10	12-01-88	88120101	<0.2	<0.2	<0.5
SMW-10	08-31-88	88350010	<0.2	<0.2	<0.5
SMW-11	12-02-88	88120203	<2	<2	<5
SMW-11	08-31-88	88350011	<2	<2	<5
SMW-12	12-02-88	88120208	<1000	<1000	<2500
SMW-12	08-31-88	88350012	<1000	<1000	<2500

ILLUSTRATIONS

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ILLUSTRATIONS



EXPLANATION

■ 15 Air Monitoring and Soil Gas Survey
Sampling Location and Number

— — — Boundary of Monitoring Grid Cell



Harding Lawson Associates
Engineers and Geoscientists

DRAWN
ML

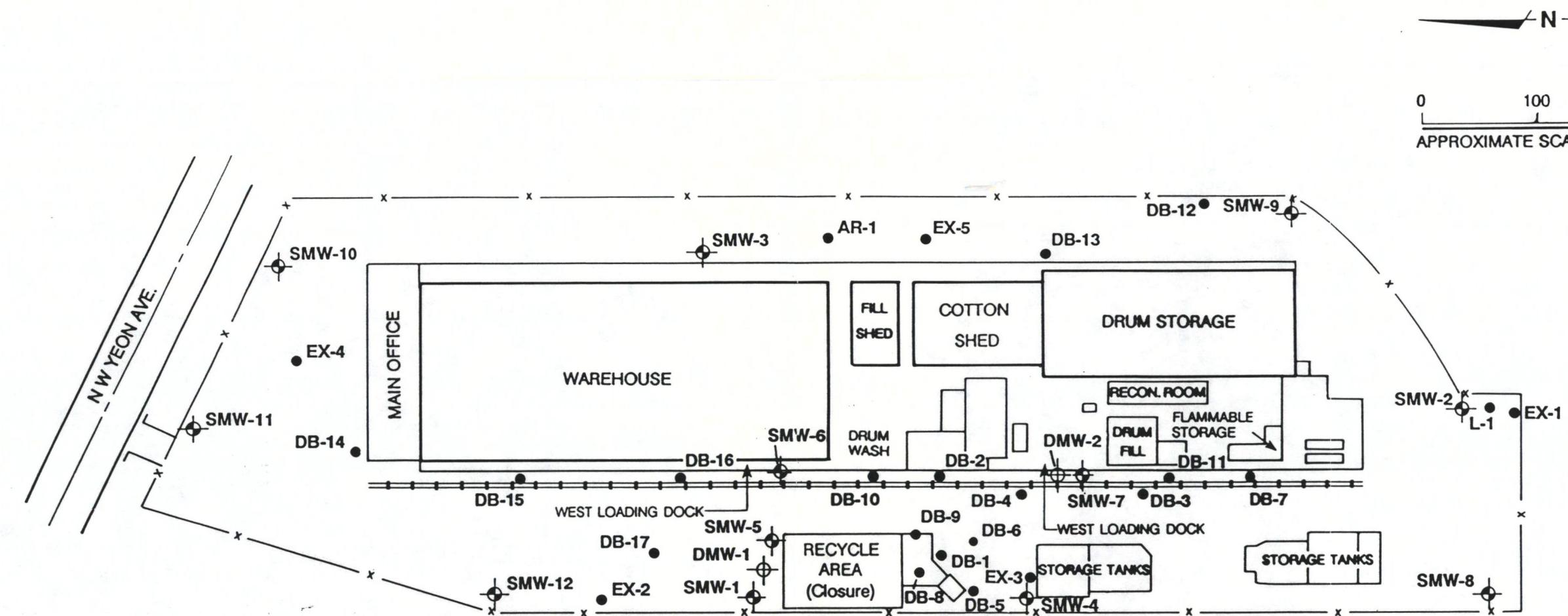
JOB NUMBER
9695,052.02

Air Monitoring and
Soil Gas Survey Locations
Phase I Investigation
Van Waters & Rogers, Inc.
Portland, Oregon

APPROVED
JmO

DATE
1/89

REVISED DATE

**EXPLANATION**

- SMW-1** Shallow Monitoring Well Location
- DMW-1** Deep Monitoring Well Location
- DB-6** Deep Boring Location



Harding Lawson Associates
Engineers Geologists
& Geophysicists

DRAWN
ML

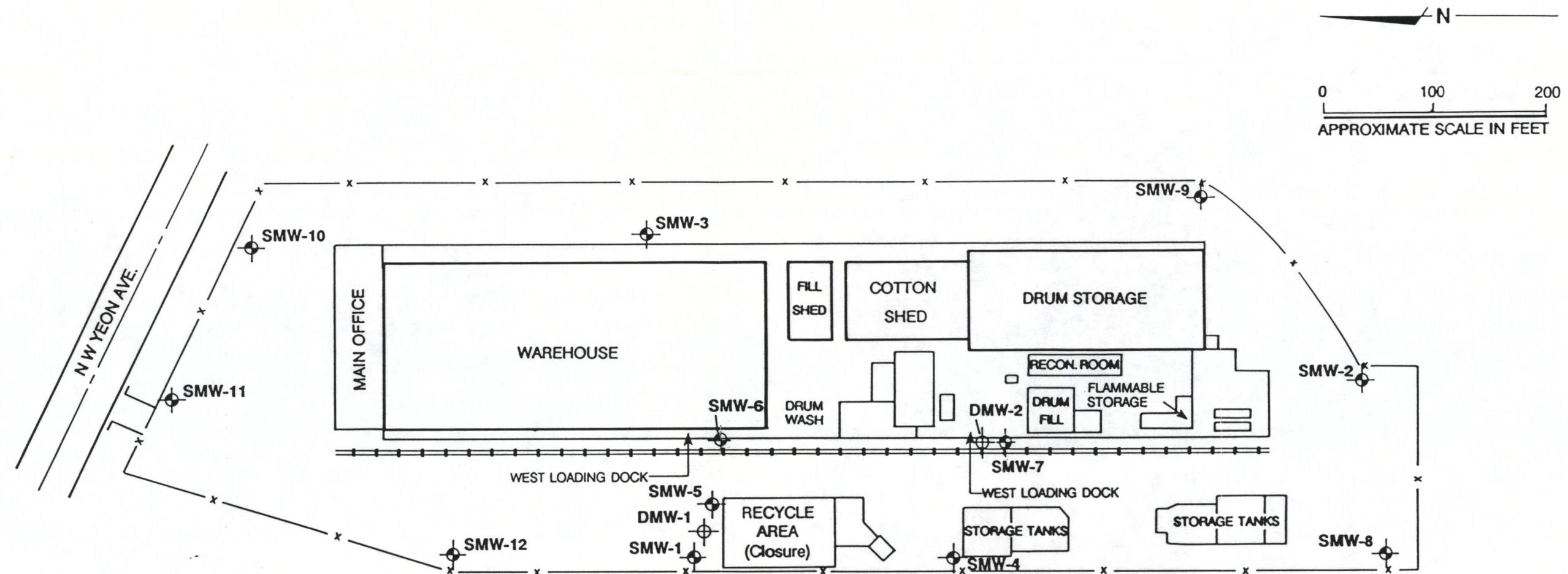
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9695,052.02

Soil Boring Locations
Phase I Investigation
Van Waters & Rogers, Inc.
Portland, Oregon

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EXPLANATION

- SMW-1 Shallow Monitoring Well Location
 DMW-1 Deep Monitoring Well Location



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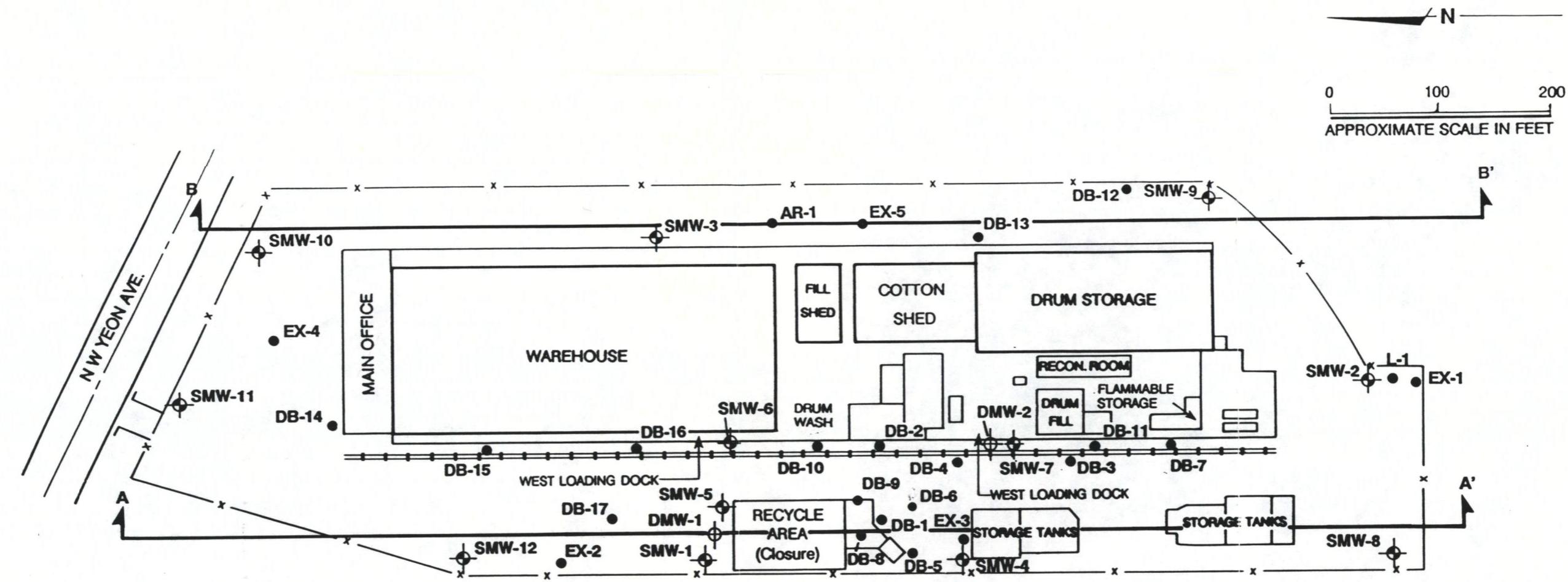
JOB NUMBER
9695,052.02

Monitoring Well Locations
 Phase I Investigation
 Van Waters & Rogers, Inc.
 Portland, Oregon

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DATE
1/89

REVISED DATE



EXPLANATION

- SMW-1 Shallow Monitoring Well Location
- DMW-1 Deep Monitoring Well Location
- EX-1 Subsurface Boring Location
- A A' Cross Section Location

Note: Cross Sections are on Plates 5 & 6



Harding Lawson Associates
Engineers, Geologists
& Geophysicists

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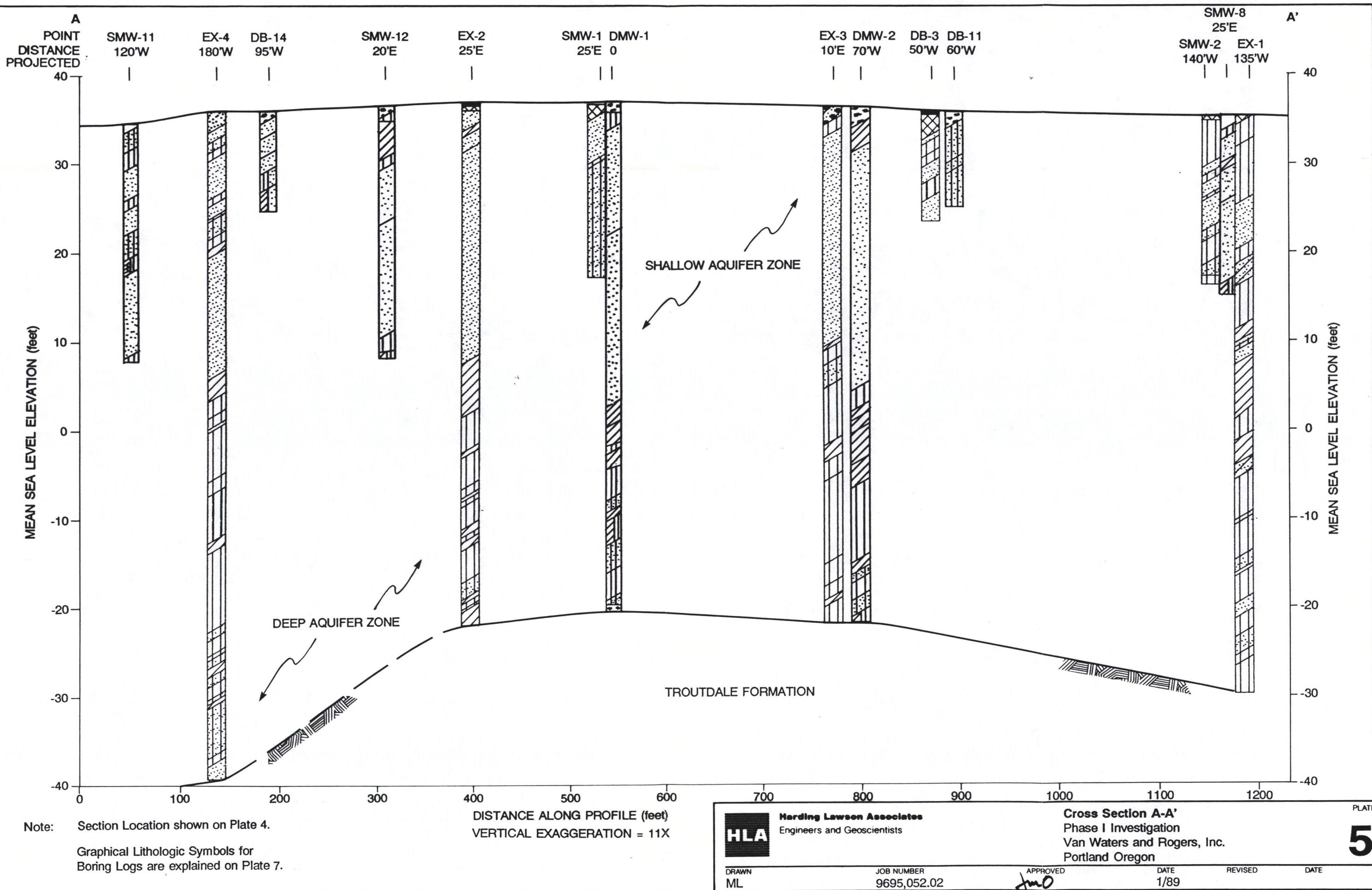
JOB NUMBER
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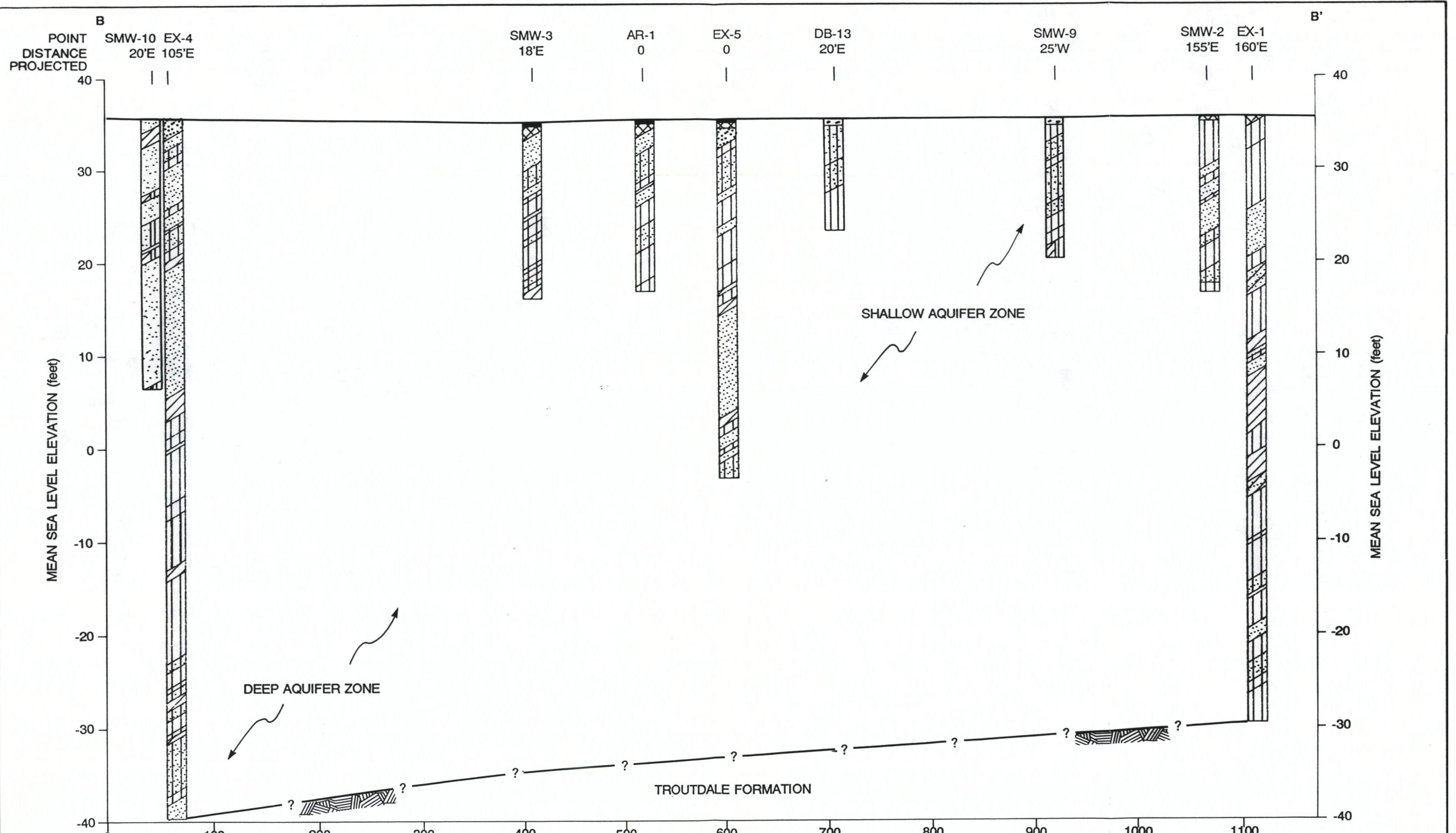
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DATE
1/89

REVISED DATE

Location of Cross Sections
Phase I Investigation
Van Waters and Rogers, Inc.
Portland Oregon





Note: Section Location shown on Plate 4.

Graphical Lithologic Symbols for
Boring Logs are explained on Plate 7.

DISTANCE ALONG PROFILE (feet)
VERTICAL EXAGGERATION = 11X



Harding Lawson Associates
Engineers and Geoscientists

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JOB NUMBER
9695,052.02

Cross Section B-B'
Phase I Investigation
Van Waters and Rogers, Inc.
Portland Oregon

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1/89

REVISED DATE

MAJOR DIVISIONS			TYPICAL NAMES		
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES	
			GP	POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES	
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, SILTY GRAVELS WITH SAND	
			GC	CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND	
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES	
			SP	POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES	
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS WITH OR WITHOUT GRAVEL	
			SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL	
	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS	
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS	
			OL	ORGANIC SILTS OR CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
			OH	ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY	
	HIGHLY ORGANIC SOILS		Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS	

UNIFIED SOIL CLASSIFICATION - ASTM D2487-85

Perm — Permeability
 Consol — Consolidation
 LL — Liquid Limit (%)
 PI — Plastic Index (%)
 G_s — Specific Gravity
 MA — Particle Size Analysis
 — "Undisturbed" Sample
 — Bulk or Classification Sample

Shear Strength (psf)	Confining Pressure
TxUU 3200 (2600) (FM) or (S)	— Unconsolidated Undrained Triaxial Shear (field moisture or saturated)
TxCU 3200 (2600) (P)	— Consolidated Undrained Triaxial Shear (with or without pore pressure measurement)
TxDU 3200 (2600) (P)	— Consolidated Drained Triaxial Shear
SSCU 3200 (2600) (P)	— Simple Shear Consolidated Undrained (with or without pore pressure measurement)
SSCD 3200 (2600)	— Simple Shear Consolidated Drained
DSCD 2700 (2000)	— Consolidated Drained Direct Shear
UC 470	— Unconfined Compression
LVS 700	— Laboratory Vane Shear

KEY TO TEST DATA



Harding Lawson Associates
 Engineers and Geoscientists

Unified Soil Classification Chart
and Key to Test Data
Phase I Investigation
Van Waters & Rogers, Inc.
Portland, Oregon

PLATE

7

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EVALUATION OF INTERIM REMEDIAL MEASURES
VAN WATERS & ROGERS, INC.
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PORTLAND, OREGON
February 1, 1989

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QUALITY CONTROL REVIEWER

Tamara L. Williams

Tamara L. Williams
Senior Associate Hydrogeologist